

AR54

**BALLARD**

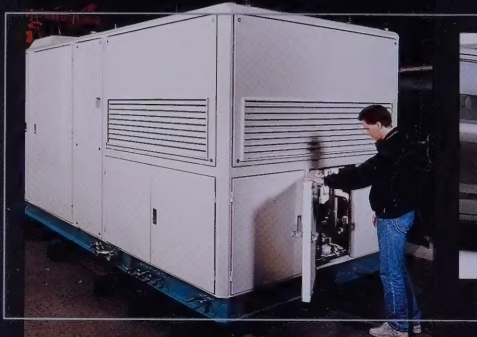
---

# Commercialization v

**Commercialization**  
with **Strategic Partners**

---

Ballard Power Systems Inc. 1997 Annual Report



# th Strategic Partners

---

Ballard's objective is to be first to market. To achieve this, we form strategic partnerships with global market leaders. This strategy combines Ballard's leadership in fuel cells and fuel cell systems with our partners' financial commitment and product engineering, manufacturing, marketing, distribution, and service capabilities, enabling us to advance deliberately, with reduced risk. By being first to market, the Ballard Fuel Cell will set the standard for those that follow.



**Power to Change the World . . .** Soon, power will be generated efficiently and cleanly by Ballard Fuel Cells in transportation, stationary and other mass markets. Buses, automobiles, and trucks will provide the performance we expect without the pollution we can no longer accept. Distributed power plants will provide high quality, reliable electricity without the need for more high voltage transmission lines and central power plants. This is the world powered by Ballard Fuel Cells.

Ballard is the world leader in the development and commercialization of proton exchange membrane fuel cells that the Company began developing in 1983. The Ballard Fuel Cell efficiently converts fuel directly into electricity without combustion.

Ballard is driven to meet objectives. In each year's annual report, Ballard looks forward, setting objectives for the year ahead, and reviews the achievements of the past twelve months. This review enables shareholders to assess Ballard's progress. Ballard has proven its technology leadership through dramatic increases in the power output of its fuel cells, and by demonstrating their practical application in a series of prototype buses, cars, and stationary power plants. The Company's focus is now on developing competitive products for target markets with strategic partners by reducing cost and implementing volume manufacturing processes.

3  
**Letter to  
Shareholders**

9  
**Fuel Cells -  
The Best  
Alternative**

10  
**How the  
Ballard Fuel  
Cell Works**

11  
**Management's  
Discussion  
and Analysis**

11  
Product  
Development  
Progress

13  
Stationary  
Electrical  
Power

17  
Transportation  
Products

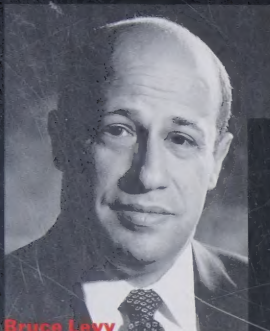
21  
Other  
Products

22  
Operating  
Results, Capital  
Requirements  
and Risks

27  
**Financial  
Statements**

43  
**Corporate  
Information**





**Bruce Levy**  
President and  
Chief Executive Officer  
GPU International, Inc.  
Parsippany, NJ USA

"The combination of Ballard Power Systems' recognized lead in the development of proton exchange membrane fuel cell power plants together with GPU International's expertise in the world energy business provides the experience and resources for Ballard Generation Systems to rapidly commercialize innovative energy products, creating a successful and profitable business. Fuel cell power plants will provide real alternatives to conventional central power generation around the world, responding to the demand for distributed power plants.

"Fuel cell power plants will open up significant new markets in the power business within the next five years. Ballard Fuel Cell Stationary power plants are an important part of the new and evolving energy market, addressing the needs for high quality power because they can bring clean, reliable power to commercial enterprises, homes, and remote sites, allowing energy service companies to better meet their customers' increasingly varied and sophisticated demands. By teaming with Ballard and now GEC ALSTHOM we are positioned to effectively meet an expanding market need in the 21st century."



**Robert Mahler**  
Managing Director,  
Transmission and  
Distribution Division  
GEC ALSTHOM NV  
Paris, France

"Fuel cell power plants should become a core part of the decentralized power generation and electrical distribution business in the next century as they provide tangible benefits to end customers. The relationship with Ballard Generation Systems, that we will create after we formalize our memorandum of understanding, complements our core power transmission and distribution business. Our collaboration should lead to the growth of a significant business, manufacturing products to satisfy customer needs in the rapidly expanding distributed power generation market.

"Ballard Fuel Cell Stationary power plants should provide high quality power from a source independent of the power grid, that is simple to install, easy to maintain, and clean, providing a true alternative to conventional power generation.

"GEC ALSTHOM brings a century of manufacturing expertise to Ballard's leadership position in PEM fuel cells and fuel cell stationary power plants. Additionally, GEC ALSTHOM's expertise in marketing power products and GPU International's customer perspective creates a formidable team to bring Ballard Fuel Cell power plants to market serving the growing and evolving world energy business."

G E C A L S T H O M





**Jürgen Heibert**  
Member of the Board  
of Management,  
Passenger Car Division  
Daimler-Benz AG  
Stuttgart, Germany

"The fuel cell is the only alternative to the internal combustion engine with the potential to harmonize mobility and environmental concerns at a price that the market will accept.

"We have proven Ballard's superior fuel cell technology in three generations of vehicles and a transit bus. The most recent fuel cell automobile is the NECAR 3, a Mercedes-Benz A-class subcompact, which operates on methanol, the world's first, demonstrating the practicality of the fuel cell engine as an alternative.

"Our joint venture with Ballard is a fitting extension of Daimler-Benz's collaboration with Ballard that began in 1993. This joint venture represents our continuous striving for progress through innovation. Through this closer, intensified collaboration Daimler-Benz, Ballard, and Ford are further expanding their technological lead.

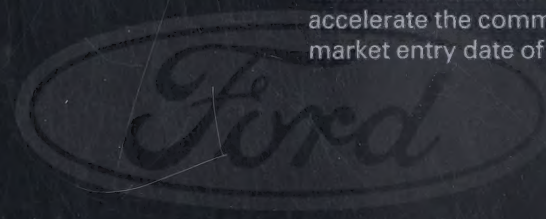
"We believe that our leadership role in this promising technology will create a new industry. This will result in even cleaner and more efficient vehicle engines for the world."



**Richard Parry-Jones**  
Group Vice President -  
Product Development  
Ford Motor Company  
Dearborn, MI USA

"Ford Motor Company sees the partnership with Ballard and Daimler-Benz as a natural complement of talent, skills, and technology combined with a true desire to bring innovative products to market which address our customers' needs for transportation and a clean environment in which to live.

"We view fuel cells as a key technology that could revolutionize the automobile industry in the early 21st century. The internal combustion engine has been the standard for mobile transportation for the last 100 years, but it is increasingly difficult to improve it further. We are optimistic about the future of fuel cell vehicles to meet the difficult environmental challenges. With our collaborative efforts with Ballard and Daimler-Benz, we aim to accelerate the commercial viability and market entry date of fuel cell vehicles."





Construction of the 250 kW Ballard Fuel Cell stationary power plant fueled by natural gas.



25 Watt portable fuel cell system.



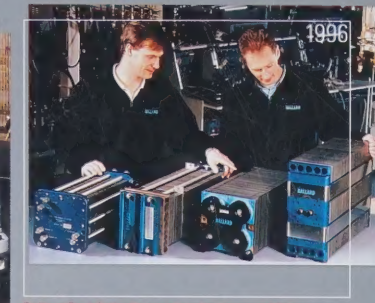
Marine power plant on test at Howaldtswerke-Deutsche Werft AG.



Ballard Prototype Zero-Emission Fuel Cell Bus.



Daimler-Benz NECAR II, powered by Ballard's high power density fuel cells.



Ballard Fuel Cells. Power density increased from 100 W/litre in 1989 to over 1100 W/litre in 1996.

## 1995 Past Achievements

### Technology

Implemented lower-cost catalyst technology in production fuel cells.

Commenced pilot plant production of Ballard's low-cost proton exchange membrane.

Reduced cost of flow field plates by incorporating alternative lower cost materials for transportation fuel cells.

### Stationary Power Plants

Developed Ballard Fuel Cell for the alpha 250 kW power plant.

Installed 10 kW natural gas power plant at demonstration site.

Fabricated major subsystems for the alpha 250 kW power plant.

### Transportation Engines

Achieved power density required for automotive applications (a greater than fivefold increase from the 1991 production fuel cell).

Secured order and commenced pilot manufacturing of bus engines for demonstration fleet.

Delivered advanced fuel cells for second generation passenger vehicle.

Demonstrated commercial prototype zero-emission engine in a transit bus, fits into same space as a diesel engine.

### Other Applications

Completed fuel cells and began assembly of submarine power plant modules.

Assembled land based power plant for the air independent propulsion system for submarines.

Developed prototype portable fuel cell power plant.

## 1996 Past Achievements

### Technology

Implemented low-cost flowfield plates into production fuel cells.

Implemented advanced low-cost catalyst technology in production fuel cells.

Developed pilot manufacturing capability for polymer material for Ballard membrane.

Developed advanced methanol fuel processor for marine applications.

Obtained ISO 9002 certification.

### Stationary Power Plants

Secured Energy Marketing Partner, GPU International, for the commercialization of stationary fuel cell power plants.

Began building alpha 250 kW Ballard Fuel Cell power plant.

Obtained commitment for \$30 million government funding for the development of stationary fuel cell power plants.

### Transportation Engines

Secured contract to develop Ballard Fuel Cell Engine operating on methanol for buses.

Demonstrated passenger vehicle using advanced Ballard Fuel Cells with joint development partner Daimler-Benz.

Obtained order from second transit authority for Ballard Fuel Cell Engines in bus demonstration fleet.

Began building Ballard Fuel Cell Engines for transit bus demonstration fleet.

### Other Applications

Delivered fuel cell power plant modules to submarine manufacturer.

Completed Ballard Fuel Cell methanol power plant for submarines.

Secured new contracts for portable fuel cell power system.



Ballard's 250 kW fuel cell stack for stationary applications.



The NECAR 3, a Mercedes-Benz A-class subcompact, powered by Ballard Fuel Cells.



Ballard Fuel Cell buses delivered to the Chicago Transit Authority for two year test program.

## 1997 Achievements

### Technology

✓ Demonstrated advanced low-cost materials in production fuel cells.

✓ Reduced the cost of production fuel cells (by over 50%) by implementing next generation components.

✓ Began implementation of pilot line for manufacturing fuel cells. *To be completed in 1998.*

✓ Secure relationship with a manufacturer for the production of Ballard membrane. *Discussions underway with membrane manufacturers.*

✓ Implement low-cost Ballard membrane into production fuel cells. *Began qualification process for Ballard membrane in production fuel cells.*

### Stationary Power Plants

✓ Secured manufacturing partner, GEC ALSTHOM of Paris, France, for the commercialization of stationary fuel cell power plants.

✓ Completed fabrication and commissioned alpha 250 kW power plant.

✓ Secured orders for two beta stationary power plants for field trials.

### Transportation Engines

✓ Delivered 3 fuel cell engine powered buses to Chicago Transit Authority and completed 3 fuel cell engine powered buses for BC Transit, *to be delivered in 1998.*

✓ Demonstrated advanced methanol fuel cell automobile and hydrogen fuel cell bus with strategic partner, Daimler-Benz.

✓ Secured automotive partners, Daimler-Benz AG and Ford Motor Company, for development and commercialization of fuel cells and systems for buses, cars, and trucks.

✓ Began development of production fuel cell transit bus engine.

✓ Obtained orders from automotive customers Chrysler, Ford, Nissan.

### Other Applications

✓ Developed next generation low-cost portable fuel cell.

✓ Obtained order from Matsushita Electric Works for fuel cells for portable systems.

■ Obtain contract to develop Ballard Fuel Cell air independent propulsion system for submarines.

## 1998 Objectives

### Technology

■ Complete implementation of pilot scale manufacturing processes implementing low cost components.

■ Complete design of commercial fuel cells to meet performance and cost requirements for automotive, stationary and portable applications.

■ Secure relationships with suppliers of key fuel cell components: membrane, catalysts, and flow field plates.

### Stationary Power Plants

■ Complete testing of alpha 250 kW power plant.

■ Complete design of beta 250 kW power plant for field trials.

■ Secure orders and commence building beta stationary power plants for field trials.

■ Secure additional partner for Ballard Generation Systems.

### Transportation Engines

■ Complete formation of new alliance integrating Ford into the existing relationship with Daimler-Benz.

■ Secure orders for next generation heavy-duty engine.

■ Demonstrate next generation fuel cell automobile engine with partners.

### Other Applications

■ Secure partners for commercializing portable fuel cell products.

■ Secure orders for fuel cells for portable power products.

✓ Objective achieved

✓ Objective partially achieved

■ Objective not achieved



**Power to Change the World . . .** Soon, power will be generated efficiently and cleanly by Ballard Fuel Cells in transportation, stationary and other mass markets. Buses, automobiles, and trucks will provide the performance we expect without the pollution we can no longer accept. Distributed power plants will provide high quality, reliable electricity without the need for more high voltage transmission lines and central power plants. This is the world powered by Ballard Fuel Cells.

Ballard is the world leader in the development and commercialization of proton exchange membrane fuel cells that the Company began developing in 1983. The Ballard Fuel Cell efficiently converts fuel directly into electricity without combustion.

Ballard is driven to meet objectives. In each year's annual report, Ballard looks forward, setting objectives for the year ahead, and reviews the achievements of the past twelve months. This review enables shareholders to assess Ballard's progress. Ballard has proven its technology leadership through dramatic increases in the power output of its fuel cells, and by demonstrating their practical application in a series of prototype buses, cars, and stationary power plants. The Company's focus is now on developing competitive products for target markets with strategic partners by reducing cost and implementing volume manufacturing processes.

3  
**Letter to  
Shareholders**

9  
**Fuel Cells –  
The Best  
Alternative**

10  
**How the  
Ballard Fuel  
Cell Works**

11  
**Management's  
Discussion  
and Analysis**

11  
**Product  
Development  
Progress**

13  
**Stationary  
Electrical  
Power**

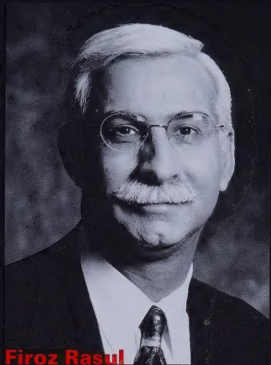
17  
**Transportation  
Products**

21  
**Other  
Products**

22  
**Operating  
Results, Capital  
Requirements  
and Risks**

27  
**Financial  
Statements**

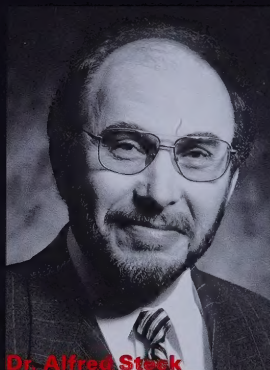
43  
**Corporate  
Information**



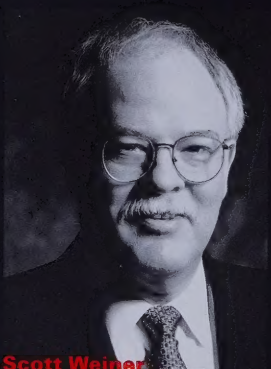
**Firoz Rasul**  
*President and  
Chief Executive Officer  
Ballard Power Systems*



**Mossadiq Umedali**  
*Vice President and  
Chief Financial Officer  
Ballard Power Systems*



**Dr. Alfred Steck**  
*Vice President,  
Research and Development  
Ballard Power Systems  
President  
Ballard Advanced Materials*



**Scott Weiner**  
*Vice President  
Ballard Power Systems  
President  
Ballard Generation Systems*



**Neil Otto**  
*Vice President  
Ballard Power Systems  
President  
Ballard Automotive*



1997 was momentous in realizing the vision of creating joint ventures to commercialize fuel cell products for stationary and transportation applications. A key part of this strategy is the formation of strategic partnerships. We secured the commitment, capabilities, resources, and strength of industry leaders with global presence through the strategic alliances announced in 1997. During the year, we also made significant progress in improving fuel cell performance, reducing cost, developing manufacturing processes, enhancing the design of fuel cell products, and added leading names to our customer base. These advances were demonstrated in several prototypes of our products. Through our achievements, we significantly increased the recognition of fuel cells as the power source of the future and of Ballard's leadership position in the industry.

Each year, in the annual report, Ballard outlines its objectives, which are set to be challenging and demonstrate meaningful progress. I am pleased to report that of the 14 objectives for 1997, we fully achieved or exceeded nine and added two new significant achievements. We partially achieved four goals which we are on track to complete in 1998. The goal of obtaining a contract to develop a fuel cell engine for submarines was not achieved due to changes in government priorities.

Discovered 150 years ago, fuel cells have been considered superior power generators, but until now impractical for commercial use due to their relatively low power density and high cost. Ballard selected proton exchange membrane (PEM) fuel cell technology, which had been used in the space program during the 1960s, for further development, because of its potential application to such mass

markets as stationary power generation, transportation engines, portable power systems, and many others. In 1989, Ballard began implementing a development and commercialization strategy to move PEM fuel cells from the laboratory to the mainstream of future power products. We made dramatic progress in performance, cost, and systems application. Early on, Ballard recognized that to realize the value created by these technical advances and to be first to market, the Company needed to partner with industry leaders to create products based on the Ballard Fuel Cell.

### Strategic Partnerships

Ballard's focus and core competence lie in the development of fuel cells for all applications. To commercialize the fuel cell successfully, Ballard needed to secure partners and customers who would integrate this key component into competitive products to deliver the benefits of clean, efficient, and reliable power in the wide spectrum of potential applications. To leverage our efforts, obtain capital, and gain the critical capabilities of market access, product engineering, mass production, and service coverage, we secured alliances with selected global players. These partnerships will enable Ballard to participate in and capture additional value from commercializing system products manufactured by the joint ventures. During 1997, Ballard announced four major strategic partnerships for stationary and transportation applications.

### Stationary Power Plant Alliances

**GPU International, Inc.** First announced at the end of 1996, the alliance with GPU International (GPU) was finalized in January 1997. GPU is a subsidiary of







GPU, Inc., a New Jersey-based international energy company that serves a worldwide population of over 13 million located in 12 countries. GPU is investing \$31.2 million over two years for a minority interest in Ballard Generation Systems (BGS), the Ballard subsidiary responsible for commercializing Ballard Fuel Cell stationary power plants using fuel cells supplied by Ballard Power Systems. GPU's broad market perspective of the evolving deregulating power industry has been, and will be, valuable to ensure that our product designs meet the specific needs of customers in the various market segments.

**GEC ALSTHOM NV.** In December 1997, Ballard announced that GEC ALSTHOM (ALSTHOM) would join Ballard's stationary power systems alliance with GPU and invest in BGS. Based in Paris, France, ALSTHOM is a world leader in the design, manufacture, supply, and installation of systems and complete solutions for power generation, transmission, and distribution. ALSTHOM brings to BGS important manufacturing expertise and market access that will assist in its transition from development to volume manufacturing of Ballard Fuel Cell stationary power plants.

ALSTHOM will invest \$54 million in cash and technology for a minority interest in BGS and \$26 million in cash in a new company to be formed by ALSTHOM and BGS for the exclusive manufacture, sale, and distribution of Ballard Fuel Cell stationary power plants in Europe. The formation of the alliance is expected to be completed during the first half of 1998.

In 1998, BGS will commence the construction of a pilot-scale manufacturing facility for fuel cell power plants. ALSTHOM will play an important role in developing the manufacturing processes to be used

in this facility and in the design of cost-effective BGS products.

### ***Transportation Engine Alliances***

**Daimler-Benz AG.** In 1993, Ballard signed its first agreement with Daimler-Benz, a four-year collaboration to develop a compact, high-power fuel cell stack. Daimler-Benz chose Ballard after a thorough search and evaluation of the PEM fuel cell technologies of various companies while Ballard chose Daimler-Benz because of its outstanding automotive engineering capabilities, knowledge of the marketplace, and commitment to PEM fuel cells. This collaboration was very successful, meeting all of its goals on time and on budget.

In 1997, the Ballard / Daimler-Benz collaboration moved to the next level, goal of commercializing fuel cell engines. We are pleased to welcome Daimler-Benz as a strategic shareholder in Ballard and as a partner in a new joint venture to develop and sell fuel cell engines to all automotive companies, including Daimler-Benz. Through this alliance Ballard is able to access the vast engineering and manufacturing capabilities that Daimler-Benz has built through its production of Mercedes-Benz cars, buses, and trucks.

In announcing the \$450 million strategic alliance, which included the purchase by Daimler-Benz of a 25% minority equity interest in Ballard, Daimler-Benz said that it was determined to be the first company to offer volume-manufactured vehicles powered by fuel cell engines. Under the alliance, two joint venture companies were established: DBB Fuel Cell Engines, with a mission to develop and manufacture transportation fuel cell systems, and Ballard Automotive, with a mandate to market automotive fuel cells and fuel cell systems







to car, bus, and truck manufacturers globally. Ballard Power Systems will develop, manufacture, and supply fuel cells for the alliance (at arm's length prices) as well as for integration by automakers who choose to develop their own fuel cell engines.

**Ford Motor Company.** In December 1997, Ford Motor Company announced that it would join the Ballard/Daimler-Benz alliance. Ford, the world's second largest producer of cars and trucks, will add significant market and technical strength to the alliance. Ford also brings leadership in electric drive-trains, which were developed in its battery powered electric vehicle programs.

Under the terms of the transaction, which we expect to close in April, Ford will acquire a 15% interest in Ballard, reducing Daimler-Benz's interest to 20%. Ford will acquire a 22% interest in DBB Fuel Cell Engines and establish a new joint venture with Daimler-Benz and Ballard to commercialize electric drive-trains primarily for vehicles. Ford will also become a partner in Ballard Automotive.

Daimler-Benz and Ford share a long history of innovation in the automobile industry. Daimler-Benz developed the world's first internal combustion engine powered automobile and Ford developed the world's first mass production line that made automobiles affordable to the general public.

Our four strategic partners have shown the foresight and commitment to develop fuel cell products for the world. Our plan is to continue this strategy of combining our expertise in fuel cells and fuel cell systems with the market experience, manufacturing expertise, and financial commitment of industry-leading strategic partners to broaden our reach in key markets by developing new product lines for Ballard Fuel Cells.

## Other Highlights of 1997

In addition to the formation of strategic alliances, other significant events occurred for Ballard in 1997 including the introduction of new prototype products using Ballard Fuel Cells, the addition of new customers, and further advancements in fuel cell technology.

In February, Ballard secured a contract with Delphi Energy and Engine Management, a subsidiary of General Motors, to supply fuel cells for Chrysler Corporation. Chrysler announced at the Detroit Autoshow in January 1997 that it plans to demonstrate, in 1999, a fuel cell powered automobile using gasoline as the fuel.

In February, Ballard secured a further contract with Nissan Motor Co. Ltd. to supply fuel cells for Nissan's research and development program on fuel cell powered electric vehicles.

In April, the Canadian Government announced its collaboration with the United States Government's program for a New Generation of Vehicles (PNGV) by supporting Ballard in the development of a complete hydrogen fuel system for Ford. The total government contribution represents 80% of Ballard's development costs.

In May, Daimler-Benz unveiled the NEBUS (New Electric Bus) powered by advanced Ballard Fuel Cells. This transit bus has excellent performance characteristics and meets the requirements of European transit authorities.

In August, the Ballard Fuel Cell 250 kilowatt alpha stationary power plant operating on natural gas was commissioned by BGS. This is the world's most powerful PEM fuel cell power plant. The power plant's performance exceeded our goals, and test results are being used to improve the design of the next generation beta units.







which are scheduled to begin field testing in the second half of 1999. Improved system components, including advanced fuel processors, control systems and power conditioning, will be incorporated into these Data power plants.

In September, Daimler-Benz unveiled the NECAR 3 at the Frankfurt Auto Show. This is the third generation of fuel cell automobiles powered by Ballard Fuel Cells to emerge from Daimler-Benz. The NECAR 3 is the world's first fuel cell passenger car that runs methanol as the fuel. Based on a Mercedes-Benz "A" class subcompact, the NECAR 3 offers performance and refueling characteristics that are comparable with cars powered by conventional internal combustion engines.

In December, Ballard, through DBB Fuel Cell Engines, completed the delivery of three zero-emission fuel cell demonstration buses to the Chicago Transit Authority. After a training and initial testing period the buses will commence regular transit service in March 1998 for a two-year demonstration program that will provide operating information required to refine the development underway for the heavy-duty fuel cell production engine. During 1997, we also built three additional fuel cell transit bus engines for delivery to BC Transit for a similar field demonstration and testing program.

Also in December, Ballard received a follow-on order from Matsushita Electric Works for Ballard Fuel Cells to supply power products for the emerging power train. Technology advancements by Ballard's low-pressure "ambient" fuel cells over the last year have produced a remarkably reliable, simple, quiet, and clean power source, useful for both portable and low power stationary applications. Product development for the ambient fuel cells

and stationary power plants and power ships will take on greater emphasis. Ballard's low-pressure fuel cells are expected to be in commercial use by the end of 1998.

In February 1998, Ballard signed the formal contract for the \$30 million purchase from the U.S. Army of the first "Crest" Power Plant by the U.S. Army. The Army will purchase between 1998 and 2000 to contribute to the development of the Army's 2531 "Crest" power plant, which will be used for stationary power plant sales.

In the development of fuel cells, the area of our core competence, we introduced new fuel cell components, a proprietary membrane, and implemented new processes into our pilot manufacturing line, significantly reducing cost and improving fuel cell performance.

## Expanding Operations

During 1997 we effectively managed the realignment of our business relationships, new operational entities, and information systems, as well as growing our workforce. We hired new employees and implemented organizational changes with minimal disruption to operations. We completed improvements in our BGS facility in Berkeley, CA and by DBB Fuel Cells in Berkeley, CA and by DBB Fuel Cells in Berkeley, CA. We also introduced a new facility for our commercial German subsidiary, Ballard Power Systems GmbH, in Karlsruhe, Germany, our first plant. In addition, we met the challenge of managing the information flow to our shareholders and the public by maintaining the sharply heightened interest in Ballard





## Fuels and Fuel Infrastructure

For fuel cells to be successful in mass markets, suitable fuels must be widely available and the fuel cell system must be able to utilize the selected fuel efficiently. We have a two-part strategy to address these issues. First, the technology development focus is to broaden the range of fuels which can be used by our fuel cell systems in both stationary and transportation applications. Ballard and its strategic partners and customers, along with component suppliers, competitors, and leading fuel companies are developing fuel processors to use various fuels in addition to hydrogen, including methanol, natural gas, gasoline, propane, ethanol, waste water treatment gas, and landfill gas. Second, while the natural gas fuel infrastructure already exists for stationary power applications, companies are beginning to work on the development of a fuel infrastructure for transportation applications. In this vein, Ballard signed a memorandum of understanding with Methanex Corporation, the world's largest methanol producer, to promote and encourage the development of a methanol fuel infrastructure. Other leading fuel companies are examining the incorporation of alternative fuels into the existing infrastructure.

## Market Awareness

Due to the significant demonstrable achievements of Ballard and its partners and customers, fuel cells received an unprecedented level of attention in 1997. Contributing to the focus on fuel cells were the issuance of tough new clean air rules in the United States, and the debate over, and signing of, the Kyoto Protocol on Climate Change, which mandated reductions in greenhouse gas emissions. In October, President Clinton at the White House Conference on Climate Change

commented, "There are many people here today from companies that are addressing climate change in innovative ways, ... Ballard Power Systems [is a] leading pioneer in developing fuel cells....". Awareness of Ballard's progress has been noted in many leading media publications, citing fuel cells as a feasible solution to the environmental and power problems the world faces today. Fuel cells, with their promise of a clean, efficient energy solution, have moved to center stage.

## Competition

Heightened market awareness has also brought new competitors into the PEM fuel cell industry. For example, during 1997, Toyota increased its commitment to develop its own fuel cell powered automobile and exhibited a prototype methanol fuel cell hybrid vehicle late in the year. General Motors, at the Detroit Auto Show in January 1998, announced its commitment to bring a fuel cell powered vehicle to market by 2004, enhancing its fuel cell engine development program significantly. International Fuel Cells, a division of United Technologies, announced expansion of its program to develop PEM fuel cells for automotive applications.

Ballard welcomes the creation of a viable fuel cell industry which can only develop through the entry of credible competitors. We are confident that our leadership position and the strength of our partnerships will enable us to maintain our momentum and be first to market.

## Looking Forward

On a sadder note, at the end of 1997, one of Ballard's founders, Dr. Geoffrey Ballard, resigned his position as Chairman due to failing health. The Board of Directors resolved to appoint Dr. Ballard as Chairman

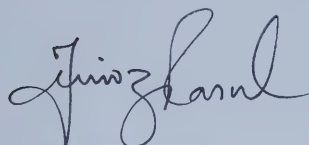




Emeritus, an honorary position. His contribution to the success of Ballard will continue to be remembered through his name.

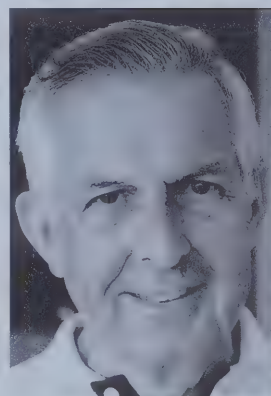
At year end 1997, Ballard was a stronger company with a broader business base and greater financial capacity, better equipped to meet the new challenges of marketing and manufacturing. We believe our strategic partnerships have increased our ability to achieve successful commercialization and therefore reduced our risk. With announcements by DaimlerChrysler, Ford, General Motors, and Toyota, among others, to put a fuel cell car on the road by 2004, PEM fuel cells are now regarded as the best alternative to the internal combustion engine to power the next century.

For 1998 we have set challenging objectives, which will move us forward to reduce cost and be first to market. With our solid partners committed to developing products based on the Ballard Fuel Cell, supportive investors, and the can-do attitude that has brought us this far, Ballard is well-positioned for the challenges we will face.



Fred A. Roud  
*President and Chief Executive Officer*

21 March 1998



**Dr. Geoffrey Ballard** was one of the original founders of Ballard Power Systems in 1979. With his foresight in 1983, the Company began the development of proton exchange membrane fuel cells. In 1988, when he became Chairman of the Board of Directors, he stepped back from the Company's day-to-day activities. During his term as Chairman of Ballard Power Systems, which ended on his retirement in December 1997, he was an active and vocal proponent of fuel cells and their potential to have a positive impact on the world around us.

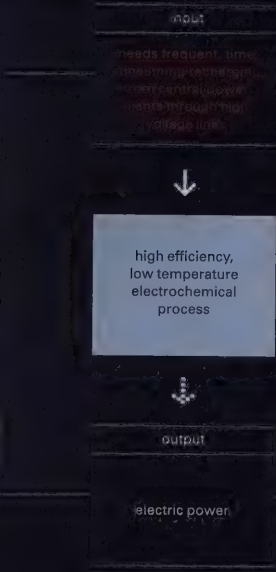
At Ballard Power Systems, Dr. Ballard's energy, vision, and enthusiasm have become a fundamental part of our corporate culture. This legacy is behind our drive to bring the Ballard Fuel Cell to market, and make Ballard Power Systems the success he saw it could become in 1983.





# Fuel Cells – The Best Alternative

## Rechargeable Battery



Batteries are energy storage devices; they only produce power intermittently. The recharging process is lengthy, inconvenient, and shifts pollution, efficiency and cost problems up the power line to central electric power plants.

The battery is recharged (refueled) and electrodes reconstituted by the time-consuming process of passing electricity into the battery. Batteries and fuel cells are both electrochemical (non-combustion) devices that have high efficiency and quiet operation, without the polluting byproducts of combustion. A battery stores its energy in its electrodes. Electricity is released as the electrodes are consumed.

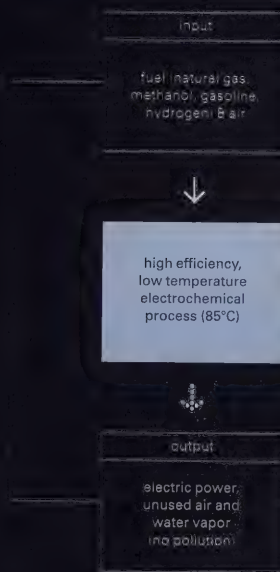
## Internal Combustion Engine



The high temperature combustion process in an ICE has low efficiency, produces harmful pollutants, noise, and vibration.

ICEs operate by burning fuel to create heat; the heat is converted into mechanical energy and then motive power or, by turning a generator, electric power. The efficiency of this conversion process is greatly affected by losses of waste heat and friction. In contrast, fuel cells efficiently convert fuel directly into electricity, making fuel cells more than twice as efficient as ICEs in extracting useful power from fuel. Like an ICE, fuel cells conveniently use fuel from a tank that can be quickly refueled and operate continuously as long as fuel is supplied. Unlike ICEs, however, fuel cells do not burn fuel and therefore do not produce the air pollutants resulting from combustion.

## Ballard Fuel Cell



The Ballard Fuel Cell generates power in a fundamentally different way from the internal combustion engine (ICE) and rechargeable batteries. Fuel cells have the advantages of both without the problems of either.

Fuel cells are electrochemical devices that are clean, quiet, and efficient; they operate continuously as long as fuel is supplied. Fuel cells have no moving parts; therefore, they have excellent reliability and long operating lives. Fuel cell systems can use multiple fuels such as natural gas, methanol, gasoline, and hydrogen. They have high power density sufficient to power an automobile and the refueling ease of an ICE. Fuel cell systems feature the positive qualities of both ICEs and batteries while overcoming the negative attributes of both. Fuel cells are the best alternative.



# How the Ballard Fuel Cell Works

The core of the Ballard Fuel Cell consists of two electrodes, the anode and the cathode, separated by a solid polymer membrane electrolyte. Each of the electrodes is coated on one side with a thin platinum catalyst layer. Hydrogen fuel dissociates into free electrons and protons (positive hydrogen ions) in the presence of the platinum catalyst at the anode. The free electrons are conducted in the form of usable electric current through the external circuit.

The protons migrate through the membrane electrolyte to the cathode. At the cathode, oxygen from air, electrons from the external circuit and protons combine to form pure water and heat. To obtain the desired amount of electrical power generated, individual fuel cells can be combined into a fuel cell stack. Increasing the number of cells in a stack increases the voltage while increasing the surface area of the cells increases the current.

**Flow Field Plate**  
Gases (hydrogen and air) are supplied to the electrodes through channels formed in flow field plates.

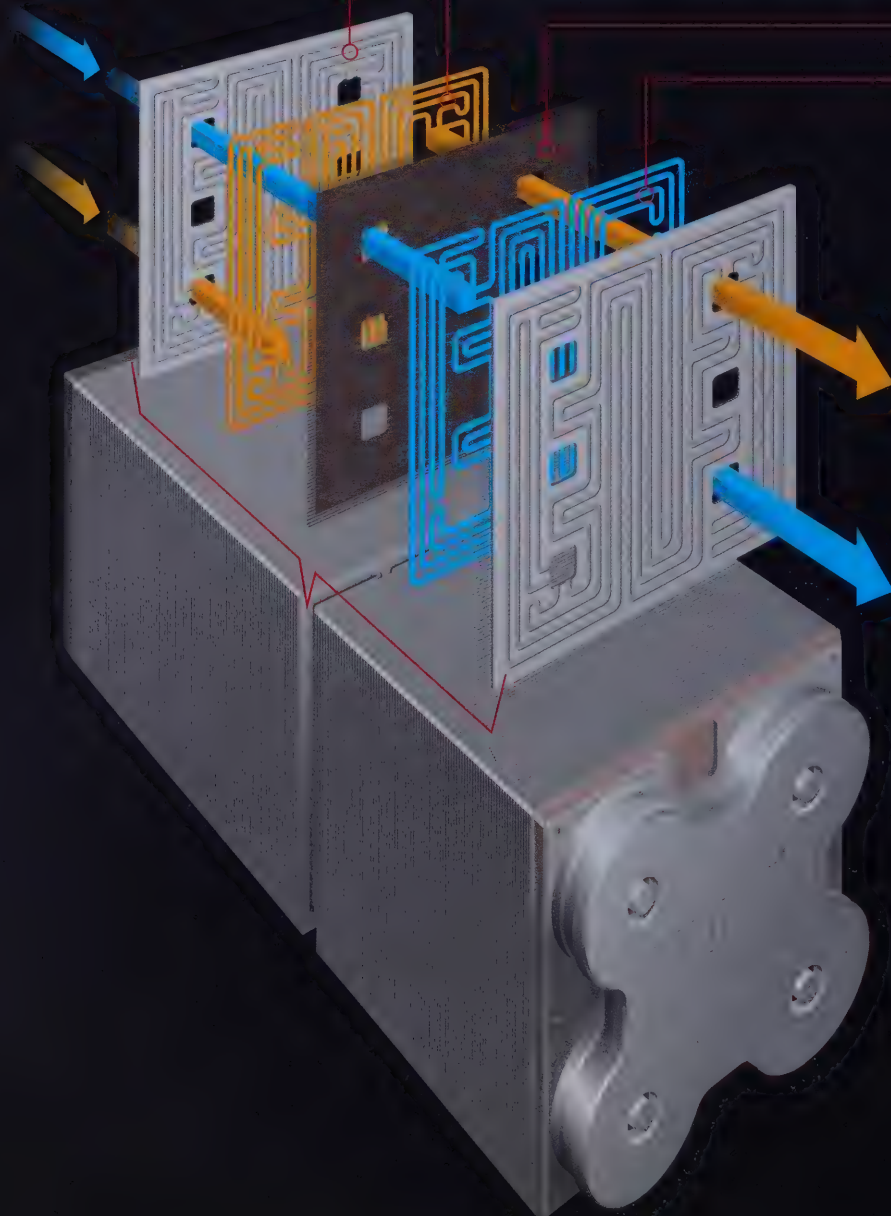
**Hydrogen**  
Hydrogen flows through channels in flow field plates to the anode where the platinum catalyst promotes its separation into protons and electrons. Hydrogen may be supplied to a fuel cell directly or can be obtained from natural gas or methanol using a fuel processor.

**Membrane Electrode Assembly**  
Each membrane electrode assembly consists of electrodes (anode and cathode) with a thin layer of catalyst, bonded to either side of a proton exchange membrane (PEM).

**Air**  
Air flows through the channels in flow field plates to the cathode. Oxygen in the air attracts the hydrogen protons through the PEM. The air stream also removes the water created as a by-product of the electrochemical process.

**Expanded Single Fuel Cell**  
A single fuel cell consists of the membrane electrode assembly and two flow field plates.

**Complete Fuel Cell Stack**  
Single cells are combined into a fuel cell stack to produce the desired level of electrical power.



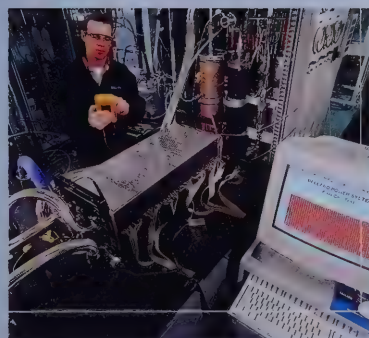
## Management's Discussion & Analysis



In September 1997, Ballard was awarded the Sir William Grove Memorial Medal for the Company's contribution to advances in fuel cell technology.



During 1997, automotive fuel cells incorporated advanced materials reducing the cost by over 50% from the previous year.



A Ballard Fuel Cell stack being tested prior to shipment.

*This annual report contains forward-looking statements reflecting Ballard Power Systems' current expectations as contemplated under the Safe Harbor provisions of the US Private Securities Litigation Reform Law of 1995. Investors are cautioned that all forward-looking statements involve risks and uncertainties, including, without limitation, product development delays, changing environmental regulations, the ability to attract and retain business partners, future levels of government funding, competition from other fuel cell manufacturers, competition from other advanced energy technologies, competition from existing energy technologies, evolving markets for electric power and transportation vehicles, and the ability to provide the capital required for product development, operations, and marketing. Investors are encouraged to review the section in this Management's Discussion and Analysis titled "Operating Results, Capital Requirements and Risks" (pages 22 to 26) for a more complete discussion of factors that could affect Ballard's future performance.*

Ballard's world leadership position in the development of PEM fuel cells for various applications is the result of innovation in product development, resolute market focus, strategic partnerships with industry leaders, employee commitment, and financial conservatism. This annual report reviews the achievements during 1997 and outlines the milestones that have been set for 1998. Adhering to the strategic plan, Ballard and its partners intend to be first to market, becoming the de facto standard in the industry.

Ballard Fuel Cells provide practical solutions for powering stationary and transportation applications. Nine years ago, the development began by building proof-of-concept fuel cells. This was followed during the period from 1992 to 1994 by the development of sub-scale and full-scale prototype systems to demonstrate the technology. These systems evolved into commercial prototypes proving the practicality of the Ballard Fuel Cell. Today, fuel cells are widely viewed as viable alternatives to conventional technologies. Ballard's

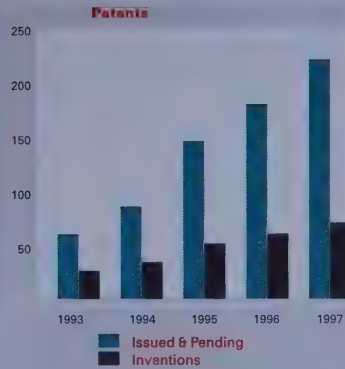
focus is now on engineering its fuel cells into commercial products by reducing costs and developing volume manufacturing processes. During 1997, Ballard secured four strategic partnerships, made further advancements in fuel cell and system performance, decreased costs, and began implementing a pilot scale manufacturing line. Ballard Fuel Cells were demonstrated in several new full-scale prototypes, which are now undergoing testing and refinement. These included the Ballard 250 kilowatt natural gas fuel cell stationary power plant, NECAR 3 and NEBUS shown by Daimler-Benz AG (Daimler-Benz), six transit buses, and a 100 Watt portable fuel cell system.

Ballard's resources have been concentrated on two primary fuel cell markets, stationary electric power and transportation. Within each of these markets, the initial focus is to open up segments in mass markets – stationary power plants below one megawatt in power and heavy-duty engines for buses and light-duty engines for cars in transportation.





Ballard protects its technological lead with a comprehensive patent strategy.



Two large volume reactors used in scaling up production of the polymer used in the manufacture of Ballard's proton exchange membranes.

As a result of Ballard's success, four global corporate leaders have become its strategic partners and two new joint venture companies have been formed to commercialize systems using the Ballard Fuel Cell. The first joint venture, Ballard Generation Systems (BGS) is developing stationary fuel cell power plants with partners GPU International (GPUi) and GEC ALSTHOM (ALSTHOM). The second joint venture, DBB Fuel Cell Engines, is working to bring fuel cell systems for buses, cars, and trucks to market on behalf of Ballard and its partners Daimler-Benz and Ford Motor Company (Ford). Such strategic partnerships are an integral part of Ballard's approach to commercialize fuel cells and be first to market. Ballard's expertise in fuel cells combined with the systems and industry experience, manufacturing expertise, commitment to take fuel cell products to market, and financial strength of our strategic partners, will enable us to advance faster, and launch products sooner.

Recognition of Ballard and its work in advancing fuel cells continues to

increase. In addition, other companies have recognized the market opportunities and stepped up their fuel cell programs. In the past year, three major automobile manufacturers have unveiled fuel cell vehicles and stated that fuel cells are now seen as the most likely replacement for the internal combustion engine. Emerging competition in the development of fuel cells makes Ballard's increased development and marketing efforts even more important.

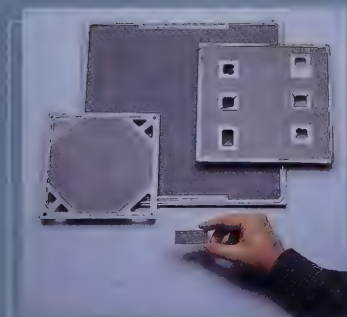
Intellectual property, including patents and know-how, is among Ballard's most precious assets and, therefore, vigorously protected. Patents are sought for all key inventions to protect Ballard's technology lead against emerging competition. By the end of 1997, Ballard had 220 worldwide patents issued, allowed or pending, covering 70 distinct inventions. This compares with 179 patents issued, allowed or pending for 60 distinct inventions in 1996.

Ballard continues to maintain its world leadership position in the development and manufacture of PEM fuel cells, demonstrating higher performance and lower cost than any competi-

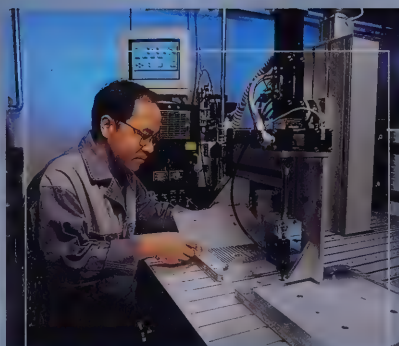
tor. In 1997, the manufacturing cost of our production fuel cells for transportation applications was reduced by over 50% from that attained the year before. These achievements are the result of the implementation of pilot-scale, volume production processes and development advances in reducing the cost of the fuel cell's core components. As Ballard continues to make advances in power density, efficiency, and reliability, our primary attention is on integration into commercial products, cost reduction, and manufacturability.

#### Stationary Electric Power and Transportation Applications

Stationary electric power and transportation applications impose very different requirements on the fuel cell. High fuel efficiency and a long operating life (up to 40,000 hours) are needed for a stationary power plant, with the power plant cost in the range of US\$1,000 to \$2,000 per kilowatt for mass markets. High power density, for lower volume and weight, is the key for transportation engines, which have a shorter operating life (5,000 to 20,000 hours) and a lower engine cost requirement of US\$50 to



Ballard's Membrane Electrode Assemblies (MEAs) are designed for specific applications.



Computer controlled equipment is used to ensure consistent quality.



Low cost flow field plates are being developed to meet the cost requirements of various applications.

\$200 per kilowatt. Ballard plans to meet the cost requirements that the marketplace demands from fuel cells by using low-cost materials, improving designs to increase performance and simplify manufacturing, developing manufacturing processes for high volumes, lowering cost of production, and forming market alliances with the potential to build the volume required to make fuel cells cost competitive with conventional technologies.

#### Proton Exchange Membrane Fuel Cells

Ballard is completing the manufacturing qualification and testing of its proton exchange membrane for implementation into production fuel cells. The Ballard membrane has significant advantages over commercially available membranes in both cost and performance at higher power densities.

Current production fuel cells now incorporate low-cost, lightweight flow field plates and low-cost catalyst technology. However, in order to significantly reduce cost, Ballard is combining the expertise of its development teams with the high volume, low-cost manufacturing experience of our

strategic partners, and the expertise of key suppliers. Ballard and its strategic partners believe that the aggressive cost reduction targets are achievable.

#### Manufacturing Process Development

Manufacturing process development is a key area of cost reduction to enable commercialization. During 1997, several improvements to fuel cell manufacturing processes were introduced. These included implementing automated equipment and tracking systems to reduce cycle time, combining production processes to eliminate unnecessary steps, and improving process control and quality. In 1998, additional pilot scale manufacturing processes are expected to be implemented to complete the pilot manufacturing line. To ensure that new fuel cell designs are compatible with and take advantage of the high volume, low-cost manufacturing processes that Ballard is developing, manufacturing personnel are integrated into the fuel cell development teams. This concurrent engineering reduces the time required to qualify and incorporate engineering advances into manufactured products.

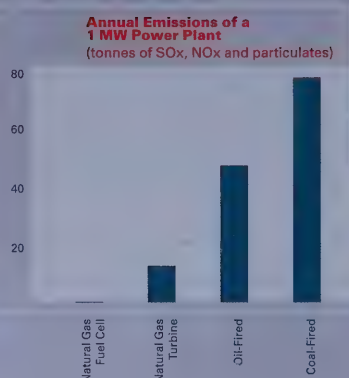
#### Stationary Electrical Power

Deregulation continued to dominate planning in the electric power industry in North America and in many other parts of the world in 1997. In the United States, many state legislatures and utility commissions, driven by the prospect of lowering cost to users, were moving toward deregulation and competition in the generation, transmission, and distribution of electricity. By the end of the year, about a quarter of the states in the USA, including many of the most populous states, had set mandatory deadlines for competition or were moving in that direction. The first phase of California's plan, which provides for full retail competitiveness in 2003, was re-scheduled to go into effect in March 1998, three months after the original date. A number of other states were awaiting commission decisions or the outcome of studies. Several proposals to shape deregulation at the federal level were also introduced in Congress.





The 250 kW Ballard PEM Fuel Cell stack is the most powerful in the world.



Ballard Generation Systems' development facility in Burnaby BC Canada.

Many electricity companies are actively positioning themselves for the new era rather than waiting for the rules to change. This is evidenced by an increase in mergers, acquisitions, divestitures, and joint ventures. Commercial and industrial electricity consumers, which previously had limited power sources from which to choose, are looking forward to more choices. In a competitive market, low-cost power will be sold to consumers in high-cost areas, assuming there is sufficient high-voltage transmission capacity to carry electricity long distances to distribution substations. Many existing transmission networks are already overextended, and new transmission facilities are nearly as difficult to site and permit as new central power stations. In situations where bringing in remotely generated power is not economic, siting an electricity generator at or near the user, known as "distributed" or "decentralized" power, is an attractive solution for supplying either primary or back-up power requirements, or both.

Ballard's 250 kilowatt fuel cell power plant, fueled by natural gas, is designed to provide high-quality distributed

power with many operating advantages and a superior environmental profile compared to conventional generating technologies. Ballard Fuel Cell power plants are more efficient than comparable diesel-powered units, resulting in lower operating costs. Maintenance should be less frequent because there are no moving parts in the fuel cell, where the power is produced. Also, the electric power produced automatically adjusts to accommodate changes in load, and can be modularly scaled up. Lastly, the unit operates quietly in a self-contained, neighborly package, giving off only trace emissions when fueled by natural gas.

The environmental advantages of Ballard Fuel Cell stationary power plants are particularly beneficial for locations where permits for new power sources are difficult to obtain, as in many cities in the developed world and near residential areas. During 1997, concern about air pollution, particularly smog and its effects on human health, and greenhouse gases and their effect on

global climate change, remained high on the public policy agendas of many countries – both developed and developing – around the world.

In the United States, federal regulations issued in July 1997 tightened the standards for ground level ozone (smog) and particulate matter (soot). In a related action, in October 1997, a federal rule was proposed which would mandate reductions in nitrous oxide emissions from power plants in 37 states, and would establish a system for market-based trading of emission credits. Although full compliance with these two rules will not phase in for several years, to many businesses in the United States clean power has become increasingly important, and quite possibly essential, for future growth. In November 1997, Canada released its Federal Smog Management Plan – Phase 2, which contains a review of the underlying scientific issues and proposals for new initiatives. In January 1997, the European Council issued a directive on ambient air quality and set a timetable for issuing new standards for selected air pollutants, including smog precursors.



Top down view of the 250 kW Ballard Fuel Cell stack.



Construction of the 250 kW Ballard Fuel Cell stationary power plant fueled by natural gas.



The 250 kW Ballard Fuel Cell power plant commissioned in August, 1997.

The concern over global warming culminated in the Kyoto conference on global climate change, which focused attention on carbon dioxide, another by-product of burning fossil fuels, in addition to nitrous oxide. The treaty successfully negotiated at the conference, if ratified, would impose on the signatories mandatory reductions over the next 10 years of six greenhouse gases. Signatories to the treaty include Canada, the United States, Japan and the European Union. Because of their higher efficiency, Ballard Fuel Cell power plants fueled by natural gas (which contains carbon) emit much less carbon dioxide compared to conventional fossil fuel burning power plants. Ballard Fuel Cell power plants fueled directly by hydrogen emit no carbon dioxide or pollutants.

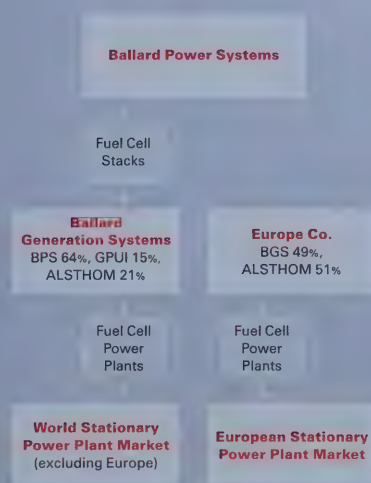
#### Ballard Generation Systems Building A Fuel Cell Stationary Power Plant Business

In December 1996, Ballard created a new subsidiary, Ballard Generation Systems (BGS), to exclusively commercialize fuel cell power plants for stationary applications. In January 1997, Ballard completed

the formal documentation with the first partner in this venture, GPU International (GPU), a subsidiary of GPU, Inc., a major international electric company based in New Jersey. GPU brings considerable expertise in world energy markets, an understanding of user requirements, and will invest \$31.2 million over two years for a 15% interest in BGS. Twelve months later, in December 1997, Ballard announced the second partner for this venture, GEC ALSTHOM (ALSTHOM), a world leader in the design, manufacture, supply, and installation of equipment and complete system solutions for the power generation, transmission, and distribution industries. Based in Paris, France, ALSTHOM will contribute both manufacturing and marketing expertise to BGS, as well as provide technical knowledge of local electrical codes, standards, and engineering practices, in order to make the BGS fuel cell power plants suitable for the deployment throughout Europe. In the proposed transaction, which is expected to close by the middle of 1998, ALSTHOM will invest \$54 million for a 21.4% interest in BGS in the form of \$29 million in cash and \$25 million in manufacturing technology and expertise. ALSTHOM will

contribute manufacturing know-how to BGS to establish an initial production facility in Canada to manufacture 250 kilowatt fuel cell stationary power plants. In addition, BGS and ALSTHOM will jointly invest \$51 million to form a new joint venture company for the exclusive manufacture, sale, and distribution of

#### Ballard / GPU / ALSTHOM Alliance Structure



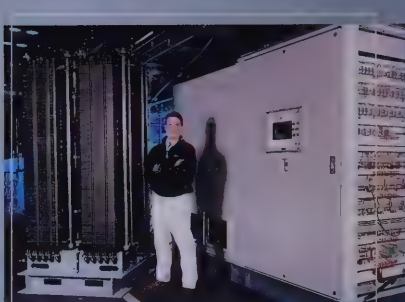




Data collection from operating  
250 kW Ballard Fuel Cell power plant.



Component performance monitoring of  
the 250 kW Ballard Fuel Cell power plant.



The 250 kW Ballard Fuel Cell stack  
prior to installation in the power plant.

PEM fuel cell stationary power plants in Europe. The investment in this European company consists of \$26 million in cash from ALSTHOM for a 51% interest, and \$25 million for the manufacturing and marketing rights in Europe from BGS for a 49% interest.

In August 1997, the first Ballard 250 kilowatt Fuel Cell power plant (alpha unit) successfully generated electricity and delivered its output to the local utility (BC Hydro) grid. It is the world's most powerful PEM stationary power plant and incorporates numerous technical accomplishments, marking the culmination of five years of development activity.

With the commissioning of the alpha unit, the focus has shifted to the design of the next generation beta power plants for field trials, which BGS will begin producing in the second half of 1998 for deployment in mid-1999. To obtain information needed to refine the design of the beta power plants, BGS has begun a series of rigorous perform-

ance tests of the alpha unit. The results of these tests will provide important information to improve the power plant, resulting in a product ready for testing by customers in the field.

BGS' initial marketing program has targeted forward-looking utilities and industrial facilities to operate and test field trial units. These field trial units will facilitate the gathering of critically important operating and reliability data in a variety of settings, for use in the design of commercial power plants. In 1998, with the assistance of its alliance partners, BGS will complete plans for marketing and manufacturing the initial commercial power plants in 2001. Ballard's partners, GPU and ALSTHOM, provide a broad knowledge of power markets in the United States, Europe, and around the world. They will assist in identifying prospective end users, and in developing appropriate distribution channels.

BGS plans to commercialize the 250 kilowatt power plant by focusing within the distributed power market on those applications which benefit from the technology's premium features – uniform, reliable, and efficiently generated power, as well as sitability

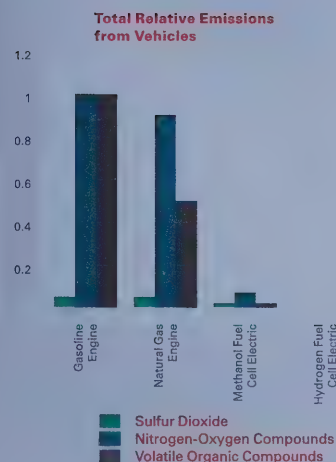
and favorable environmental impact. Among commercial, institutional, and light industrial facilities, BGS is targeting computer and telecommunications centers, manufacturing facilities which require reliable power, hospitals, laboratories and nursing homes, as well as shopping malls, apartment buildings and small hotels. Businesses and organizations interested in promoting energy conservation and environmental stewardship are also prospective users. In addition to North America and the developed world, there is a large potential market in developing countries where the existing power grid is insufficient, unreliable, or non-existent. There is also an expanding market for customers who have access to alternative sources of fuel, including oil well gas, gas from waste water treatment, landfill gas and by-product hydrogen from chemical manufacturing.

#### *New Horizons - Expanding the Product Range*

In 1998, BGS intends to begin expanding its development of stationary system products to include additional fuel options such as propane and gas



Daimler-Benz has produced three generations of vehicles powered by Ballard Fuel Cells.



from waste water treatment facilities for the 250 kilowatt power plant, as well as developing systems for the Ballard low-pressure ambient fuel cell which is suitable for applications up to 10 kilowatts in size. Potential early stationary applications include systems for emergency back-up power and primary power located remote from the grid for applications such as telecommunications networks and nodes.

## Transportation Products

### The Future: Unlimited for Pollution-Free Vehicles

Faced with increasing concerns about the effect of auto emissions on urban air quality and global climate change, and with a growing number of vehicles in use throughout the world, automakers have intensified their pursuit of cleaner, more efficient engine technologies over the past few years. Various zero-emission and low-emission vehicles have been introduced as concept, prototype, or commercial vehicles.

Existing regulations, and the potential for more, serve to focus

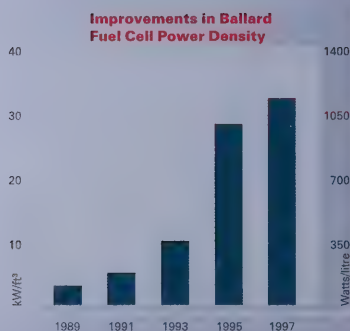
automakers and consumers on alternatives to current technologies. The state of California has mandated that, beginning in 2003, 10% of the cars sold in that state must be zero-emission vehicles. The global climate change treaty, if adopted, would mandate carbon dioxide reductions over the next decade. In 1997, the United States Environmental Protection Agency proposed an elaborate but voluntary plan for achieving lower auto emissions. In February 1998, the big three automakers stated that they would accept the EPA's national low emission vehicle (NLEV) program and provide vehicles which would emit 70% fewer emissions than cars available today – on a timetable that could be up to five years earlier than previously required.

To appeal to consumers beyond niche markets, "green" vehicles must meet the performance, comfort, convenience, reliability, and safety standards of conventional vehicles, at a competitive cost. To date, vehicles powered solely by batteries have fallen short in at least three key criteria: range between rechargings, recharging time, and cost. "Hybrid" vehicles, which use

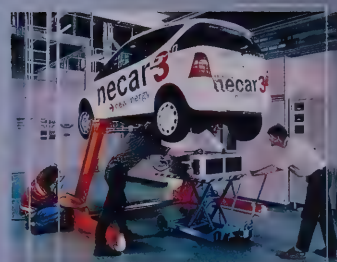
batteries and an internal combustion engine for propulsion, offer improved efficiency, reduced gasoline consumption, and lower emissions, but their dual systems make cost reduction and reliability a significant challenge. As the pace of clean introductions accelerated over the past year, and as Ballard Fuel Cells were demonstrated in several prototype vehicles, automakers and industry observers identified the PEM fuel cell as the leading clean transportation power source of the future and possibly the ultimate replacement for the internal combustion engine.

Eight years ago, when Ballard intensified its work on transportation fuel cells, the gap between state-of-the-art fuel cell technology and what was needed to provide practical automotive power was large. Step by step, Ballard addressed the formidable technical challenges and rapidly narrowed the gap. Increasing the electricity output and reducing the weight and size (increasing power density) of the fuel





NECAR 3, a Mercedes-Benz "A" class subcompact powered by Ballard Fuel Cells, introduced at the Frankfurt Auto Show in September 1997. This is the world's first fuel cell passenger car using methanol as the fuel.



In the NECAR 3, the Ballard Fuel Cells are located under the passenger compartment floor.

cell were critically important if the fuel cell engine was to fit within the tight space constraints of a vehicle while still delivering the needed power. The power density of the fuel cell in Daimler-Benz's latest prototype vehicle, NECAR 3, is over ten times that of Ballard's 1990 fuel cell. Also important was the need to develop efficient fuel processing technologies to accommodate various types of fuels and vehicle configurations. Ballard Fuel Cells are being designed to operate on a wide variety of fuels, including compressed hydrogen, natural gas, methanol, and gasoline.

However, advancing the technology and lowering the cost of the fuel cell are not Ballard's only objectives. Ballard recognizes that while the fuel cell is the heart of a fuel cell engine, the system around the fuel cell and the electric drive-train that takes the electricity and converts it into motion, are no less critical. Ballard is participating in both the development and commercial potential of the entire fuel cell engine through alliances with strategic partners who bring world-class expertise in these systems.

Ballard's first major collaboration was a four-year agreement signed in March 1993 with innovative vehicle manufacturer, Daimler-Benz. The objective was to develop jointly a compact, high power density fuel cell, and appropriate processes for component manufacturing. The Ballard Fuel Cells used to power Daimler-Benz's NECAR 1, 2, and 3 and NEBUS prototypes were tangible products of the successful collaboration.

In 1997, the two companies extended and greatly expanded their relationship with the principal objective of developing the next-generation transportation fuel cell engine. The \$450 million Ballard/Daimler-Benz alliance, which was formally completed in August, provided for an investment by Daimler-Benz of about \$200 million for 25% ownership of Ballard. In addition, two new joint venture companies were formed: DBB Fuel Cell Engines (DBB), headquartered in Kirchheim-Nabern, Germany, and Ballard Automotive, headquartered in Burnaby, BC. DBB, initially capitalized at \$250 million and owned one-third by Ballard and two-

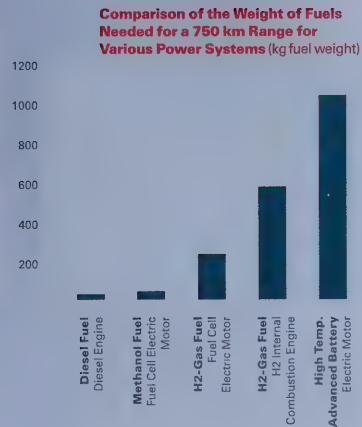
thirds by Daimler-Benz, is responsible for developing, manufacturing, and commercializing fuel cell engines for buses, cars, and trucks. Ballard Automotive, equally owned by Ballard and DBB, is responsible for selling fuel cells and fuel cell engines for vehicles to automakers globally.

In December, to accelerate commercialization of automotive fuel cell engines, Ballard and Daimler-Benz announced that they would expand their alliance to include Ford, one of the world's largest automakers and a leader in advanced electric vehicle drive-train technology. Under a detailed memorandum of understanding signed by the three companies, Ford will invest about \$300 million in cash in Ballard in return for a 15% ownership of Ballard Power Systems. After the transaction, Daimler-Benz's ownership of Ballard will be about 20%. Ford will also invest more than \$100 million in DBB, and form a third joint venture, initially capitalized at \$250 million, owned by Ford, Daimler-Benz and Ballard. This joint venture, temporarily known as Eco, will develop and commercialize electric drive-trains for electric vehicles. The signing of formal



The heads of Ford, Daimler-Benz, and Ballard at the announcement of the companies' alliance to accelerate the development of fuel cell powered buses, cars, and trucks.

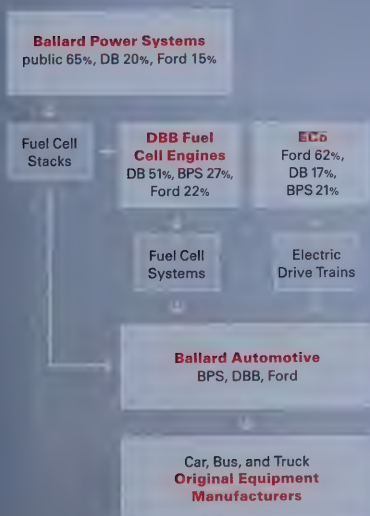
Left to right: Alex Trotman (Ford Motor Company); Jürgen E. Schrempp (Daimler-Benz AG); Firoz Rasul (Ballard Power Systems Inc.)



documents for the expanded alliance is expected in the first half of 1998.

Under the alliance agreement, Ballard will manufacture and supply fuel cells for DBB engines sold to vehicle manufacturers, including Daimler-Benz and Ford, and will also supply fuel cells to all other vehicle manufacturers who choose to develop their own fuel cell engines.

#### Ballard / Daimler-Benz / Ford Alliance Structure



During 1997, Ballard's customer list for transportation fuel cells and fuel cell systems included General Motors, Chrysler, Honda, Nissan, Volkswagen, Volvo, the Chicago Transit Authority and BC Transit, in addition to Daimler-Benz and Ford.

The extension of Ballard's alliance to include both Daimler-Benz and Ford, continued strong support for clean air by the public and regulators, and prospects of an emerging market for electric-powered vehicles which do not sacrifice performance or convenience, have resulted in acceleration in the plan of major automakers to bring fuel cell vehicles to market. Ballard and DBB plan to commence sales of fuel cell engines for automobiles by 2004.

The transit bus is a natural early market entry point for Ballard Fuel Cells for several reasons. First, provincial, state, and local governments, with a significant stake in the quality of life in their cities, own, operate, or regulate urban transit buses. These governments are also accountable to city dwellers, passen-

gers, and pedestrians, who are most affected by the pollution, odor, and noise of diesel transit buses. Second, the fuel cell engine easily fits into the diesel engine compartment of the typical transit bus, and the bus chassis is large enough to support the storage of compressed hydrogen used as fuel. Last, reducing bus emissions, an obvious source of air pollution regulated in many jurisdictions, with zero-emission bus engines would be a visible step towards compliance. In 1997 the United States Environmental Protection Agency (EPA) imposed tough new overall nitrous oxide, ozone and particulate matter air quality standards to be phased in over the next few years, targeted at diesel engines. These standards make fuel cell engines a more attractive alternative for transit bus authorities.

Considerable progress was made in Ballard's transit bus program during 1997. Work was completed on six Ballard Fuel Cell zero-emission transit buses fueled with compressed hydrogen. With the ability to access Daimler-Benz's experience in engine development and testing, DBB improved the performance and reliability





Daimler-Benz's zero-emission New Electric BUS (NEBUS), powered by Ballard Fuel Cells, debuted in May 1997 in Germany.



Ballard and DBB delivered three fuel cell buses to The Chicago Transit Authority in December 1997.

of the six buses considerably. The first three buses were delivered to the Chicago Transit Authority in December and will be placed into regular service following the completion of a testing and training program for drivers and maintenance personnel. The remaining three buses, which were built in 1997, will be delivered to BC Transit to go into service during 1998 once their facilities are completed and drivers and maintenance personnel are trained. Operating data from the six buses will be monitored for two years and used by Ballard and DBB in the design of heavy-duty commercial fuel cell engines.

In May, Daimler-Benz presented its first zero-emission fuel cell transit bus, NEBUS. This low-floor bus is powered by Ballard Fuel Cells and incorporates Daimler-Benz's expertise in electric-drive systems. The bus is extremely quiet, providing excellent performance and superior comfort, and it produces zero-emissions.

The methanol-fueled bus engine program, now being managed by DBB at its Poway, California facility, also achieved good progress during the year. Georgetown University (Washington,

D.C.) awarded this \$8.1 million competitively bid project to Ballard in 1996 under a grant from the U.S. Department of Transportation's Federal Transit Administration. The 135 horsepower engine for the Georgetown project is smaller than Ballard's prototype transit bus engine, and can power a small bus or, in a hybrid system with a battery, a full-size transit bus. The engine is scheduled for completion in 1998.

DBB will continue development of both the methanol and compressed hydrogen fuel cell bus engines in its North American facilities. The next-generation transit bus engine is planned to be smaller, more durable, with enhanced reliability, and lower cost. It is planned to be developed during 1998 and 1999, with testing to begin thereafter. Commercial sales of fuel cell engines for buses are expected to commence in 2002.

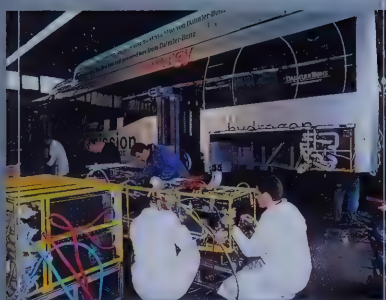
As the Company described when it entered into its alliance with Daimler-Benz in 1997, the integration of Daimler-Benz and DBB into the development of fuel cell engines for transit buses has brought an heightened awareness of the testing and market requirements to

the commercialization plan. This has resulted in the planned market entry date for these fuel cell engines moving to 2002 from 2000.

#### Vehicle Prototypes Looking Ahead Beyond 2000

The success of the collaboration between Ballard and Daimler-Benz can be seen in the three generations of fuel cell automobiles unveiled over the past 3 years. The collaboration began with the development of the NECAR 1 which was unveiled in 1994. This van's fuel cell system filled the entire interior, leaving only enough space for the driver and one passenger. In the NECAR 2 minivan, the use of two high power density Ballard Fuel Cells greatly reduced the size of the system, requiring no reduction in seating or luggage space. However, fuel storage was still an issue, as the vehicle required a hydrogen tank situated on the top of the vehicle.

In September, the latest Daimler-Benz concept vehicle powered by Ballard Fuel Cells, NECAR 3, was presented at the Frankfurt Auto Show. Powered by a liquid methanol fuel cell



Ballard Fuel Cells are used in Daimler-Benz's advanced NEBUS engine.



DBB Fuel Cell Engine using Ballard Fuel Cells prior to final assembly for a BC Transit bus.



Ford's P2000 fuel cell concept car using Ballard Fuel Cells will be completed in 1999.

engine located in the rear of a Mercedes-Benz A-class subcompact, NECAR 3 is more efficient than a conventional vehicle with an internal combustion engine, yet has comparable range and refueling capabilities, able to travel 400 kilometers on its 38-litre methanol tank before refueling.

Ballard's transportation program achieved several other noteworthy milestones during the year. In April, Ballard was selected to develop a hydrogen-powered fuel cell engine for Ford's P2000 advanced lightweight vehicle project, which is being conducted under the Partnership for New Generation Vehicles (PNGV) co-sponsored by the United States government and the Big Three U.S. automakers. Under the arrangement, Ballard will supply the fuel cells to DBB, which will develop a fuel cell engine operating on hydrogen for delivery to Ford. The Canadian government is funding \$8 million, or 80%, of the development costs for this project. Ballard also secured a contract in 1997 to supply fuel cells to Chrysler, which is developing a fuel cell engine operating on gasoline with the Delphi Energy and

Engine Management division of General Motors.

In addition, Ballard obtained an order from Nissan for fuel cells for use in Nissan's fuel cell vehicle development programs and delivered fuel cells to Honda and Volkswagen/Volvo under contracts obtained in 1996.

In 1998, Ballard's strategy for passenger vehicles is to continue development of fuel cells, by focusing on lower cost materials, enhanced fuel cell design and improved manufacturing processes, and to assist in the development of the fuel cell propulsion system in DBB and ECo, the new companies formed with Daimler-Benz and Ford.

### Other Products

While focused on fuel cells and systems for stationary power and transportation, Ballard continued to assess opportunities to apply its technologies and experience to other markets. Portable power systems, ranging up to one kilowatt, are one such opportunity Ballard is pursuing. These "ambient" fuel cell systems, which

operate at low pressures, provide reliable, clean, quiet, and efficient power. They are small and rugged enough to be carried or transported to wherever power is needed. Ballard is applying the same fuel cell technology for use in stationary power systems, up to 10 kilowatts, which are being developed by Ballard Generation Systems.

In December, Matsushita Electric Works, Ltd., which is developing systems for the emergency power markets, placed a follow-on order for low power Ballard Fuel Cells. Matsushita is integrating the Ballard Fuel Cells into a portable system using hydrocarbon fuels. In early February 1998, Honda Motor Company's R&D subsidiary placed a \$2.5 million order for one kilowatt, low power Ballard Fuel Cells operating on hydrogen. Honda will use the fuel cells for development and demonstration of portable power and specialty applications. During 1998, Ballard intends to devote increased effort to developing the market potential of low power fuel cells for portable applications and to explore potential business relationships needed to maximize this market opportunity.





Ballard's portable fuel cell power system was tested powering a radio during an ascent of Mount Logan in Yukon Territory, Canada.



Ballard's latest portable fuel cell power system provides 100 Watts of power.



Ballard Power Systems Corporate Headquarters in Burnaby BC Canada.

Ballard fuel cell development also encompasses marine and space applications. Marine markets are interesting to Ballard for several reasons. The performance requirements of marine engines can be met with fuel cell systems operating on various fuels developed for other applications. Certain marine applications benefit greatly from the advantages of fuel cell power – for submarines, the ability to operate for sustained periods underwater while generating low heat and low noise; and for ships docked in port, the generation of clean, efficient power. Ballard has made significant progress in fuel cell system development for submarines through contracts with Howaldtswerke-Deutsche Werft AG and the Canadian Department of Defence. However, government fiscal restraint has delayed the securing of significant follow-on programs.

The commercial development of PEM fuel cells has also attracted interest from NASA, which used them first in the Gemini space program. In the past, Ballard delivered fuel cells to NASA for

use in a regenerative fuel cell system which was being developed to power a lunar base camp. In 1997, NASA ordered fuel cells from Ballard for their evaluation for space applications.

**Operating Results,  
Capital Requirements and Risks**

In 1989, Ballard began to commercialize PEM fuel cell technology. Since then Ballard has raised capital through the issuance of equity, formed strategic alliances with key companies in targeted markets, developed customer relationships, and entered into development and demonstration programs with original equipment manufacturers (OEMs), transit authorities and government agencies.

In 1997, Ballard earned revenue from three sources: 1) delivery of Ballard Fuel Cell demonstration units to OEMs, including hardware sales and engineering support services for their development programs; 2) joint product development programs with strategic partners; and 3) contracts with transit authorities and agencies of the govern-

ments of British Columbia, Canada and the United States for development and demonstration programs.

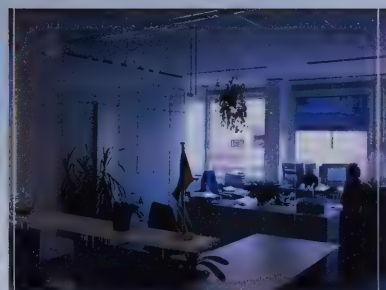
There are five primary market developments which support the growing interest in Ballard's fuel cell technology: 1) deregulation of the electric utility industry; 2) sustained growth of public concern over the environment and the resultant air quality and transportation-related regulatory action; 3) the need to meet the growing demand for electricity for stationary applications cost effectively; 4) government support of a technology which can solve major problems and be a catalyst for economic growth; and 5) the recognition of the commercial viability of Ballard Fuel Cells as a result of Ballard's technical progress, numerous demonstrations of Ballard Fuel Cells in working applications and the endorsements of major corporations involved in key markets. These developments have motivated strategic partners to form alliances with Ballard and for OEMs to undertake programs to develop products which incorporate the Ballard Fuel Cell.



Ballard's extensive development and testing capacity in Burnaby BC Canada.



Ballard's and DBB Fuel Cell Engines' facility in Poway CA USA is home for the development of a methanol fuel cell bus engine.



Ballard's facilities in Kirchheim-Naburn Germany.

Ballard's commercialization plan over the next three years will focus on the development and demonstration of its fuel cells and fuel cell systems through: 1) development of fuel cell engines for vehicles and stationary power plants with strategic partners; 2) the field testing of fuel cell bus engines and stationary power plants; 3) the sale of prototype products for vehicles, stationary power plants and portable power systems; 4) the delivery of Ballard Fuel Cell demonstration units to OEMs for their development programs; 5) the reduction in the cost of fuel cells by improving design, implementing lower cost materials and developing manufacturing processes; and 6) the optimization of the performance of the Ballard Fuel Cell.

#### Revenue Components

#### Income Statement Components

The Company operates in two industry segments, fuel cells and fuel cell systems. Fuel cell operations comprise the development, manufacture and marketing of PEM fuel cells. Fuel cell system activities comprise the

development, manufacture and marketing of fuel cell systems that incorporate fuel cells to provide power for applications such as transportation engines, stationary power plants, portable power systems, and marine power systems. Commencing August 1997, the results related to the sale of systems for buses, cars, and trucks will be reflected in the "equity in associated companies" line of the income statement, as a result of Ballard's minority ownership in DBB Fuel Cell Engines, into which Ballard transferred its operations related to fuel cell systems for buses, cars, and trucks as part of Ballard's alliance with Daimler-Benz. A breakdown of the Company's financial results into the two industrial segments, can be found in note 15 of the Company's audited financial statements that form a part of this Annual Report.

The following table details revenue and expense information for the three years ended December 31, 1995 through 1997:

*expressed in thousands of Canadian dollars*

Year ended December 31	1997	1996	1995
Revenues	\$24,192	\$25,784	\$21,017
Investment income	4,064	2,690	1,479
Gain on sale of shares of former subsidiary	1,440	4,015	2,018
Gain on issuance of shares of subsidiary	6,536	5,881	—
Gain on sale of fixed assets and intellectual property	19,431	—	—
	55,663	38,370	24,514
Cost of revenues	22,786	23,202	13,090
Research and product development	18,126	15,445	12,846
General and administrative	5,674	3,756	3,085
Marketing	2,552	1,977	2,514
Interest	55	42	120
Minority interest	(445)	(132)	48
Capital taxes	733	222	192
Equity in loss of investees	2,907	—	—
Amortization of fuel cell technology	1,227	—	—
	53,615	44,512	31,895
Net earnings (loss) for year	\$ 2,048	\$(6,142)	\$(7,381)



The increase in revenues from 1995 to 1996 is the result of the increase in the number and value of long-term fuel cell development and demonstration programs with, and sales of fuel cells to, strategic partners, OEMs and governments. From 1996 to 1997, revenues decreased slightly due to the completion of long-term contracts for marine applications and the original joint development project with Daimler-Benz, as well as the timing of revenues for new projects.

In 1995, revenues reflected the continued activity of existing long-term development programs, new programs including that with General Motors, and contracts with OEMs such as Hitachi. In 1996, revenues increased due to contracts from BC Transit, Chicago Transit Authority, Daimler-Benz, Honda, US Department of Transportation, Volkswagen, Volvo, and others. In 1997, new contracts secured included contracts with Chrysler, Nissan, Daimler-Benz, Natural Resources Canada (for Ford P2000), Matsushita Electric Works, and NASA.

Investment income increased from 1995 to 1997 reflecting a higher cash and short-term investment position which resulted from funds raised through public equity offerings, the exercise of warrants, the investment by Daimler-Benz in Ballard Power Systems, and the further investment in Ballard Generation Systems by GPU, offset by the investments Ballard made in its technology, working capital and infrastructure, and its investment in DBB Fuel Cell Engines.

In 1995, the Company sold its interest in its battery subsidiary in order to focus on its fuel cell operations, resulting in a total gain on the sale of shares of the former subsidiary of \$7.4 million from 1995 to 1997. The gain on the issuance of the shares of a subsidiary relates to the issuance of shares of Ballard Generation Systems, to GPU. Ballard's strategic partners in stationary power, GPU and ALSTHOM, will invest in BGS in 1998 and 1999, ultimately

reducing Ballard's interest in BGS to 63.8%. At December 31, 1997 Ballard's interest in BGS was 89.9%. The gain on fixed assets and intellectual property of \$19.4 million resulted from the investment by Ballard in DBB Fuel Cell Engines of \$53.3 million in cash and \$30 million in fixed assets and intellectual property (with a nominal carrying value) in exchange for a 33.3% equity interest.

The cost of fuel cell revenues increased from 1995 to 1996 and decreased from 1996 to 1997 corresponding to the changes in revenue discussed. In addition, in 1996 and 1997, Ballard made higher contributions to the costs of some development and demonstration programs, resulting in higher cost of revenues than in 1995.

Research and product development expenses consist of development activities funded by the Company, including the cost of obtaining patents. The Company's research and development activities and expenditures have increased from 1995 to 1997. During 1996 and part of 1997, the Company used its own resources to fund its stationary power plant development. In 1997, Ballard completed the formal agreements and began to file claims relating to the \$30 million contribution from the Technology Partnerships Canada Program of the Canadian government repayable by way of a royalty on future stationary power plant sales. This funding provides about one-third of the development costs for the 250 kilowatt stationary power plant.

General and administrative expenses increased from 1995 to 1997 as a result of the growth of the Company and due to costs related to the securing of strategic relationships. Marketing expenses decreased from 1995 to 1996 as a result of the streamlining of marketing functions. During 1997, marketing costs increased due to the increased level of marketing related to commercialization activities.

Amortization of fuel cell technology is related to intellectual property acquired from Daimler-Benz in 1997 that will be amortized over 15 years, the average life of the underlying patents. The equity in the loss of associated companies resulted from the 33.3% ownership of Ballard Power Systems in DBB Fuel Cell Engines.

Ballard's total cash position (made up of cash and short-term investments) was \$169.8 million at the end of 1997, compared to \$76.5 million in 1996 and \$29.2 in 1995. The higher cash position resulted from the exercise of warrants before their expiry on June 16, 1997, the investment by Daimler-Benz in Ballard Power Systems and further investment in Ballard Generation Systems by GPU, offset by the investments Ballard made in its technology, working capital and infrastructure and its investment in DBB Fuel Cell Engines. Fixed assets increased by 33% to \$23.1 million in 1997 from \$17.4 million in 1996 as a result of investments in development, testing and manufacturing infrastructure offset by assets transferred to DBB Fuel Cell Engines. As part of the Daimler-Benz / Ballard strategic alliance, Daimler-Benz transferred \$55.2 million in fuel cell technology to Ballard, a long-term asset for the Company. The formation of DBB Fuel Cell Engines resulted in a \$72.4 million investment in associated companies. The Company's \$1.1 million of debt outstanding at the end of 1996 was repaid on schedule, in April 1997, to the Canadian Government's Department of Western Economic Diversification.

#### *Contractual Commitments, Reserves and Liquidity*

As of December 31, 1997, the Company had cash, short-term investments, and contractual commitments of \$188.9 million to fund its planned fuel cell development and commercialization activities over the next three to four

years. The planned use consists of \$95.6 million for fuel cell research and product development (including fuel cell cost reduction programs), \$33.8 million for stationary power plant development programs, \$10.4 million for new application development programs (including portable and marine), \$16.1 million to develop manufacturing processes (including establishing pilot scale manufacturing capability), \$25.0 million for facilities and test equipment and \$8.0 million for working capital. Actual funding requirements may vary depending on a variety of factors, including the progress of Ballard's research and development efforts, relationships with strategic partners, results of development and demonstration programs, and advances in competitive technology.

Ballard has incurred losses every year since 1989. In 1997, due to the sale of assets to new entities, formed in conjunction with strategic partners, the Company recorded a small profit. Ballard expects to continue to incur losses for the next several years as investments are made in product development activities to achieve commercialization of planned products. Over the last three years, cash generated by Ballard from its demonstration programs and development contracts has increased each year. This cash, together with the approximately \$335 million in equity capital raised from a series of public offerings and investments by strategic partners, has provided the Company with adequate financing for the development and demonstration of its products. However, if sufficient internally generated cash or external sources of financing are not available when needed or on terms acceptable to Ballard, or if the Company experiences significant cost overruns on any of its programs for which additional funds cannot be obtained, certain research and development activities may be delayed or eliminated, resulting in potential delays in the commercialization of the Company's products.

The development and commercialization plans for Ballard's Fuel Cells and fuel cell systems which are presented in this annual report and Management's Discussion and Analysis are forward-looking statements as contemplated by the Safe Harbor provisions of the US Private Securities Litigation Reform Law of 1995. Forward-looking statements are subject to risks and uncertainties including those detailed below.

Ballard is a development stage company and its business entails risks and uncertainties which affect its outlook and eventual results of its business and commercialization plan. The primary risks relate to meeting its product development and commercialization milestones, which require that Ballard's products exhibit the cost, durability, and performance required in a commercial product. There is also a risk that market acceptance might take longer to develop than anticipated. Ballard's business plan recognizes and, to the extent possible, attempts to manage these risks by pursuing diverse end markets for its stationary, transportation, portable, and other products. Within these markets, the Company's commercialization plan is focused on products which it believes have a competitive advantage. Further, the plan for product and market development is to work closely with strategic partners and key customers such as Daimler-Benz, Ford, GPUI, ALSTHOM, General Motors, Chrysler, Nissan, Honda, Volkswagen, Volvo, Cinergy, and Matsushita Electric Works who have the capability and understanding of the market to develop products that incorporate Ballard Fuel Cells to meet consumer requirements.

The demonstration programs in stationary, transportation, and other applications which are required for development and testing of Ballard Fuel Cells and fuel cell systems in actual field operations entail significant risks. These risks include problems or delays in the

demonstrations due to technical difficulties, failure to meet design performance goals, including power output, life and reliability, and the risk of motor vehicle accidents. Ballard mitigates these risks to the extent possible by having detailed project management, formal design reviews, reviews by external experts, contingency plans which anticipate likely problems, safety reviews, training and testing programs related to the operation and maintenance of the fuel cell bus systems and stationary power plants, and by carrying appropriate liability insurance. However, there can be no assurance that the demonstrations will be successful in meeting their product and market development and commercialization objectives.

Other significant risks which influence Ballard's outlook include competing or alternative products, which could capture market share to the detriment of Ballard's products. The Company is currently aware of six major companies located in Europe, the United States, and Japan which are developing PEM fuel cells. These companies are very large in comparison to Ballard and have extensive manufacturing, marketing, and sales capabilities. However, based upon the public information available, none of these companies has developed PEM fuel cells which match the performance of the Ballard Fuel Cell. Ballard seeks to maintain its technology lead through its strong intellectual property position, which will act as a competitive barrier against PEM fuel cell competitors. However, there can be no assurance that the present or future issued patents will protect the Company's technology lead. The Company's patents that have been obtained or applied for will expire during the period from 2009 to 2017. The Company also relies upon know-how and trade secrets to maintain its technology lead. However, there is no assurance that this information can be completely protected.



Ballard Fuel Cell products must also compete with existing, established rotating combustion engines, including internal combustion engines and turbines, which are currently in wide use and have established operating and cost features. Ballard's commercialization plan seeks to overcome this competition by focusing on fuel cell products where a competitive advantage exists and by relying on the large overall size of the transportation and stationary markets to ensure a sufficient market for the Company's products. The Company's largest early market is for Ballard Fuel Cell stationary power plants, a market which is being driven by deregulation of the electric utility industry and the requirements of utilities, independent power producers, and end users. The deregulation of the electric utility industry is subject to government policies which will determine its pace and extent over time. Changes in government and public policy over time could impact deregulation and therefore adversely affect the Company's schedule for commercializing stationary power plants. Ballard seeks to manage this risk by focusing on fuel cell products where a clear competitive advantage exists and by relying on the large overall size of the international stationary markets, many of which are already deregulated, to mitigate the effects of government policy changes in any one jurisdiction.

The market for Ballard Fuel Cell transportation products is driven by environmental policies and is therefore subject to the risk of unfavorable government action related to these policies which could have an effect on the Company's outlook and result in delays in the introduction of its products. Ballard plans to have fuel cells available to power ZEV automobiles to meet the California requirements for automobile manufacturers

to sell ZEVs in 2003 for introduction in fuel cell powered vehicles in 2004. The Company's market for transit bus engines is not affected by the ZEV requirement, as this market is presently not subject to these regulations. Rather, it is driven by the requirements to phase-in lower emission mass transit vehicles under the *US Clean Air Act* of 1990 and the *Energy Policy Act* of 1992. In addition, transit authorities are taking the lead in providing solutions to the air quality problems cities face, although there can be no assurance that transit authorities will purchase Ballard's Fuel Cell Engines when available.

As described under "Capital Requirements, Resources and Liquidity", Ballard is subject to the risk that if sufficient funds from internal or external sources are not available to the Company to meet the requirements of its development and commercialization programs, certain research and development activities may be delayed or eliminated, resulting in changes to the Company's commercialization plans. Ballard seeks to mitigate this risk by securing funding commitments from a variety of sources, by maintaining a substantial cash reserve, by being financially conservative in its expenditures and by maintaining good relations with investors and investment bankers to gain access to the public equity markets.

Ballard is also subject to normal operating risks such as credit risks and foreign currency risks. Ballard's credit risks are minimal, as Ballard's customers are large creditworthy corporations and governments. While Ballard's foreign currency sales and purchases are made mainly in US dollars, the Company is not materially exposed to foreign currency exchange fluctuation risks because over time US cash balances are matched, to the extent possible, to planned purchases in US dollars.

#### Computer Systems

Ballard's development activities are dependent upon the use of computer systems. As a result, the Company has completed a review and evaluation of the potential impact that the change in the date to the year 2000 will have on those computer systems. As a result of this review, the Company has determined that all its major computer systems are able to recognize and process dates commencing in the year 2000. During 1998 and 1999, new systems that are acquired will be reviewed to ensure that they are year 2000 compliant. The Company is unable to assess the state of year 2000 readiness of its suppliers and customers. However, it is not anticipated that year 2000 related difficulties in third parties will have a material impact on the Company's business activities or prospects.

28  
Management  
Report

28  
Auditors'  
Report

29  
Consolidated  
Balance  
Sheets

30  
Consolidated  
Statements  
of Operations  
and Accumulated  
Deficit

31  
Consolidated  
Statements  
of Changes  
in Financial  
Position

32  
Notes to  
Consolidated  
Financial  
Statements

43  
Corporate  
Information



## Management Report

The consolidated financial statements contained in this annual report have been prepared by management in accordance with generally accepted accounting principles. The integrity and objectivity of the data in these consolidated financial statements are management's responsibility. Management is also responsible for all other information in the annual report and for ensuring that this information is consistent, where appropriate, with the information and data contained in the consolidated financial statements.

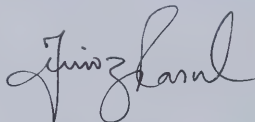
In support of its responsibility, management maintains a system of internal controls to provide reasonable assurance as to the reliability of financial information and the safeguarding of assets. Some of the assets and liabilities include amounts which are based on estimates and judgments as their final determination is dependent on future events.

The Board of Directors is responsible for ensuring that management fulfils its responsibilities for financial

reporting and internal control and exercises this responsibility through the Audit Committee. The Audit Committee consists of three directors who are not involved in the daily operations of the Company. The functions of the committee are to: review the system of internal controls; review any relevant accounting, financial and security regulatory matters; and recommend the appointment of external auditors. The Audit Committee meets on a regular basis with management and the auditors of the Company to satisfy itself that their responsibilities have been properly discharged.

The external auditors, Price Waterhouse, conduct an independent examination, in accordance with generally accepted auditing standards, and express their opinion on the financial statements. Their examination includes a review and evaluation of the Company's system of internal controls and appropriate tests and procedures to provide reasonable assurance that

the consolidated financial statements are presented fairly and in accordance with generally accepted accounting principles in Canada. The external auditors have full access to management and the Audit Committee with respect to their findings concerning the fairness of financial reporting and the adequacy of internal controls.



**Firoz A. Rasul**  
President and Chief Executive Officer  
5 March 1998



**Mossadiq S. Umedaly**  
Vice President and  
Chief Financial Officer  
5 March 1998

## Auditors' Report

*To the Shareholders of  
Ballard Power Systems Inc.*

We have audited the consolidated balance sheets of Ballard Power Systems Inc. as at December 31, 1997 and 1996 and the consolidated statements of operations and accumulated deficit and changes in financial position for each of the years in the three-year period ended December 31, 1997. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with generally accepted auditing

standards. Those standards require that we plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.

In our opinion, these consolidated financial statements present fairly, in all material respects, the financial position of the Company as at December 31, 1997 and 1996 and the results of its

operations and the changes in its financial position for each of the years in the three-year period ended December 31, 1997 in accordance with generally accepted accounting principles in Canada.



**Chartered Accountants**  
Vancouver, Canada  
5 March 1998

## Consolidated Balance Sheets

expressed in thousands of Canadian dollars

December 31

### Assets

#### Current assets

Cash and cash equivalents

\$ 144,525

Short-term investments

25,296

Accounts receivable (Note 14)

21,440

Inventories (Note 2)

1,319

Prepaid expenses

501

193,081

Fixed assets (Note 3)

23,127

Fuel cell technology acquired (Note 4)

53,756

Investments in associated companies (Note 4)

70,762

**\$ 340,726**

### Liabilities

#### Current liabilities

Accounts payable and accrued liabilities (Notes 5 and 14)

\$ 14,366

Current portion of long-term debt (Note 6)

91

Deferred revenue

7,244

Allowance for warranty

9,228

30,929

Long-term debt (Note 6)

542

Minority interest

504

31,975

### Shareholders' Equity

Share capital (Note 7)

337,851

Accumulated deficit

(29,100)

308,751

**\$ 340,726**

Commitments and contingencies (Note 10)

Approved by the Board

*Am Chanish*

Director

*Michael Stone*



# Consolidated Statements of Operations and Accumulated Deficit

Expressed in thousands of Canadian dollars except per share amounts  
Year Ended December 31

	1997	1996	1995
<b>Revenues</b>	<b>\$ 24,192</b>	<b>\$ 25,784</b>	<b>\$ 21,017</b>
<i>Investment income</i>	4,064	2,690	1,479
<i>Gain on sale of shares of former subsidiary</i> (Note 8)	1,440	4,015	2,018
<i>Gain on issuance of shares by subsidiary</i> (Note 9)	6,536	5,881	—
<i>Gain on sale of fixed assets and intellectual property</i> (Note 4)	19,431	—	—
	<b>55,663</b>	<b>38,370</b>	<b>24,514</b>
<b>Cost of revenues and expenses</b>			
<i>Cost of sales</i> (Note 11)	22,786	23,202	13,090
<i>Research and product development</i> (Note 11)	18,126	15,445	12,846
<i>General and administrative</i>	5,674	3,756	3,085
<i>Marketing</i>	2,552	1,977	2,514
<i>Interest</i>	55	42	120
<i>Minority interest</i>	(445)	(132)	48
<i>Share-based compensation</i>	733	222	192
<i>Share-based compensation to investees</i> (Note 4)	2,907	—	—
<i>Amortization of fuel cell technology</i> (Note 4)	1,227	—	—
	<b>53,615</b>	<b>44,612</b>	<b>31,895</b>
<b>Earnings (loss) before income taxes</b>	<b>2,048</b>	<b>(6,142)</b>	<b>(7,381)</b>
<i>Income taxes</i> (Note 4)	—	—	—
<b>Net earnings (loss) for year</b>	<b>2,048</b>	<b>(6,142)</b>	<b>(7,381)</b>
<b>Accumulated deficit, beginning of year</b>	<b>(31,148)</b>	<b>(25,006)</b>	<b>(17,625)</b>
<b>Accumulated deficit, end of year</b>	<b>\$ (29,100)</b>	<b>\$ (31,148)</b>	<b>\$ (25,006)</b>
<b>Net earnings (loss) per share</b> (Note 16)	<b>\$ 0.11</b>	<b>\$ (0.43)</b>	<b>\$ (0.71)</b>

# Consolidated Statements of Changes in Financial Position

expressed in thousands of Canadian dollars  
Year ended December 31

## Cash provided by (used for) operating activities

### Operations

	1997	1996	1995
Net earnings (loss) for year	\$ 2,048	\$ (6,142)	\$ (7,381)
Items not affecting cash			
Depreciation and amortization	4,420	2,063	1,355
Minority interest	(445)	(132)	48
Gain on sale of shares of former subsidiary	(1,440)	(4,015)	(2,018)
Gain on issuance of shares by subsidiary	(6,536)	(5,881)	—
Gain on sale of fixed assets and intellectual property	(19,431)	—	—
Equity in loss of investees	2,907	—	—
	(18,477)	(14,107)	(7,9)

### Changes in non-cash working capital

Accounts receivable	(10,756)	(4,1)	—
Inventories	1,100	311	—
Prepaid expenses	(337)	325	(323)
Accounts payable and accrued liabilities	3,458	3,157	—
Deferred revenue	6,513	(743)	(5,846)
Allowance for warranty	4,554	1,393	33
	4,532	270	(4,009)
	(13,945)	(13,837)	—

## Cash provided by (used in) financing activities

Net proceeds on issuance of share capital	218,220	60,618	20,413
Proceeds on sale of shares of former subsidiary	1,440	3,415	—
Proceeds on issuance of shares by subsidiary	6,874	6,563	—
Proceeds on sale of fixed assets and intellectual property	21,238	—	—
Conversion of promissory notes	—	—	822
Proceeds of long-term debt	—	—	600
Repayment of long-term debt	(1,099)	(25)	(207)
Capital lease obligation	9	622	(42)
	246,682	71,193	21,586

## Cash provided by (used in) investing activities

Net changes in short-term investments	(16,419)	(541)	7,834
Additions to fixed assets	(10,777)	(10,061)	(7,182)
Investment in fuel cell technology	(54,983)	—	—
Investments in associated companies	(73,669)	—	—
	(155,848)	(10,602)	652

## Increase in cash and cash equivalents

	76,889	46,754	10,233
--	--------	--------	--------

## Cash and cash equivalents, beginning of year

	67,636	—	—
--	--------	---	---

## Cash and cash equivalents, end of year

	\$ 144,525	\$ 67,636	\$ 20,832
--	------------	-----------	-----------

## Notes to Consolidated Financial Statements

amounts expressed in thousands of Canadian dollars except per share amounts

### 1 Significant accounting policies

#### Description of business

The principal business of Ballard Power Systems Inc. (the "Company") is the development and commercialization of proton exchange membrane fuel cells and related power generation systems for stationary and transportation applications. The Company's principal customers are major creditworthy industrial concerns and government agencies.

#### Use of estimates

The preparation of consolidated financial statements in conformity with generally accepted accounting principles requires the Company's management to make estimates and assumptions that affect the amounts reported in these financial statements and notes thereto. Actual results could differ from those estimated.

#### Basis of presentation

The consolidated financial statements of the Company have been prepared in accordance with accounting principles generally accepted in Canada. Differences with respect to accounting principles generally accepted in the United States are disclosed in Note 17.

The consolidated financial statements include the accounts of the Company's subsidiaries as follows:

Percentage ownership	1997	1996	1995
Ballard Advanced Materials Corporation	77.5	52.5	52.5
Ballard Power Corporation	100.0	100.0	100.0
Ballard Power Systems GmbH	100.0		
Ballard Generation Systems Inc.	89.9	57.3	
Ballard Automotive Inc.	50.0		

#### Cash and cash equivalents

Cash and cash equivalents consist of cash on deposit and highly liquid short-term interest bearing securities with maturities at the date of purchase of three months or less. Interest earned and any market value gains or losses are recognized immediately in the statement of operations.

#### Income taxes

Income taxes are accounted for using the deferral method.

#### Investments

Short-term investments consist of highly liquid short-term interest bearing securities with maturities at the date of purchase greater than three months. Interest earned and any market value gains or losses are recognized immediately in the statement of operations.

Investments in shares of companies over which the Company has the ability to exercise significant influence are accounted for by the equity method.

#### Inventories

Inventories are valued at the lower of cost and net realizable value. Costs of materials are determined on an average per unit basis. Work-in-progress and finished goods inventories include materials, labour, and production overhead.

#### Fuel cell technology acquired

Fuel cell technology acquired from third parties by the Company is valued at its cost and amortized over its estimated useful life.



### ***Depreciation and amortization***

Assets are depreciated or amortized from the date of acquisition or, in respect of internally constructed assets, from the time an asset is completed and held ready for use. Depreciation and amortization are computed using the straight-line method over the estimated useful lives of the assets as follows:

Manufacturing equipment	10 years
Pilot production and test equipment	5 to 7 years
Computer equipment	4 years
Furniture and fixtures	7 years
Assets under capital lease	as above, based on the category of asset under capital lease
Leasehold improvements	straight-line basis over the initial term of the respective leases
Fuel cell technology acquired	15 years based on estimated useful life

### ***Accounting for contracts***

Revenue and income from long-term fuel cell related contracts are determined under the percentage-of-completion method where revenues are recognized on a pro-rata basis in relation to contract costs incurred. Unbilled revenues (included in accounts receivable) represent revenues earned in excess of amounts billed on uncompleted contracts. Deferred revenue represents the excess of amounts billed to or cash received from customers over revenue recognized on uncompleted contracts.

### ***Government assistance and investment tax credits***

Government assistance is recorded as either a reduction of the cost of the applicable fixed assets or credited in the statement of operations as determined by the terms and conditions of the agreements under which the assistance is provided to the Company. Investment tax credits are recorded as either a reduction of the cost of applicable fixed assets or credited in the statement of operations depending on the nature of the expenditures which gave rise to the credits.

### ***Research and product development expenditures***

Research and product development costs are expensed as they are incurred in accordance with generally accepted accounting principles.

### ***Patents and licence agreements***

Costs incurred in establishing and acquiring patents and licence agreements are expensed in the period incurred or acquired.

### ***Allowance for warranty***

The Company provides for future warranty costs for contracts in progress at the end of each year based on management's best estimates of such costs taking into account past experience and the nature of the contracts.

### ***Foreign currency translation***

Monetary assets and liabilities denominated in currencies other than the Canadian dollar, the Company's functional currency, are translated at the rate of exchange in effect at the end of the year. Revenue and expense items are translated at the rate of exchange in effect on the dates they occur. Exchange gains or losses are reflected in operations immediately.

## **2 Inventories**

	1997	1996
Materials	\$ 1,144	\$ 1,294
Work-in-progress	175	873
Finished goods	—	252
	<u>\$ 1,319</u>	<u>\$ 2,419</u>

**3 Fixed assets**

December 31, 1997	Cost	Accumulated depreciation and amortization	Net
Pilot production and test equipment	\$ 16,871	\$ 3,909	\$ 12,962
Computer equipment	3,846	1,954	1,892
Furniture and fixtures	2,994	910	2,084
Leasehold improvements	7,057	868	6,189
	<u>\$ 30,768</u>	<u>\$ 7,641</u>	<u>\$ 23,127</u>

December 31, 1996	Cost	Accumulated depreciation and amortization	Net
Pilot production and test equipment	\$ 10,780	\$ 2,275	\$ 8,505
Computer equipment	2,999	1,466	1,533
Furniture and fixtures	2,171	622	1,549
Leasehold improvements	6,120	357	5,763
	<u>\$ 22,070</u>	<u>\$ 4,720</u>	<u>\$ 17,350</u>

Included in computer equipment and furniture and fixtures above are assets under capital lease at a cost of \$1,148 (1996 - \$988). Accumulated amortization on these assets is \$479 (1996 - \$366).

**4 Daimler-Benz alliance agreement**

Effective August 29, 1997, the Company entered into an alliance agreement with Daimler-Benz AG for the commercialization of fuel cell engines for buses, cars, and trucks. On closing, Daimler-Benz purchased 5,770,916 common shares of the Company representing a 25% interest. The consideration for the shares was \$201,982, including \$146,010 in cash, \$54,983 in intellectual property and \$989 in fixed assets. The intellectual property acquired by Ballard is shown in the financial statements as Fuel cell technology acquired (*Note 1*) and has accumulated amortization at December 31, 1997 of \$1,227.

In addition, Daimler-Benz and Ballard jointly invested \$249,900 in a new company, DBB Fuel Cell Engines GmbH (DBB), which will develop and commercialize fuel cell engines for buses, cars, and trucks. Daimler-Benz owns two-thirds of DBB in return for its investment of \$166,000 made up of \$56,700 in cash and \$109,900 in intellectual property and fixed assets. Ballard owns one-third of DBB in return for its investment of \$83,300 made up of \$53,300 in cash and \$30,000 in intellectual property and fixed assets. The transfer of \$30,000 of intellectual property and fixed assets to DBB resulted in the recognition of a gain on sale of intellectual property and fixed assets of \$19,431 for Ballard. The Company's 33.3% interest in DBB is accounted for by the equity method.

A second company, Ballard Automotive Inc., was also created from the alliance. This company is owned equally by Ballard and DBB. Its role in the alliance is to sell fuel cells and fuel cell engines for bus, car and truck applications to automotive manufacturers worldwide. By agreement, Ballard and DBB each reimburse Ballard Automotive for 50% of expenses incurred. The share of expenses reimbursed by the Company is shown in the appropriate account in the Company's income statement.

**5 Accounts payable and accrued liabilities**

	1997	1996
Trade accounts payable	\$ 11,259	\$ 8,806
Other liabilities	1,285	974
Wages payable	1,519	971
Taxes payable	303	157
	<u>\$ 14,366</u>	<u>\$ 10,908</u>

## 6 Long-term debt

	1997	1996
Repayable contribution agreement with the Government of Canada under the Western Economic Diversification Program.	\$ —	\$ 1,099
Capital lease obligations	633	622
Other	—	2
	633	1,723
Less: Current portion	91	1,182
	<u>\$ 542</u>	<u>\$ 541</u>

## 7 Share capital

### Authorized

Unlimited number of Common shares, voting, without par value.

Unlimited number of Preferred shares, issuable in series. The board of directors of the Company is entitled to determine the designation, preferences, rights, conditions, restrictions, limitations and prohibitions to be attached to each series of such shares.

### Issued

	1997		1996		1995	
	Shares	Amount	Shares	Amount	Shares	Amount
<b>Common shares</b>						
Balance, beginning of year	15,353,572	\$ 117,812	12,289,701	\$ 57,267	9,778,464	\$ 46,500
Issued during year for cash (net of issue costs)	4,177,271	140,274	2,749,620	58,201	2,444,000	20,280
Issued during year for intellectual property and fixed assets (Note 4)	1,599,200	55,972	—	—	—	—
Options exercised during year	439,754	5,893	233,488	1,870	18,297	133
Warrants exercised during year	1,614,861	17,900	47,463	474	50	1
Share distribution plan	68,295	—	33,300	—	48,890	—
Balance, end of year	<u>23,252,953</u>	<u>337,851</u>	<u>15,353,572</u>	<u>117,812</u>	<u>12,289,701</u>	<u>57,267</u>
<b>Series 1 preferred shares</b>						
Balance, beginning of year	—	—	—	—	—	—
Issued during year for cash (net of issue costs)	1	—	—	—	—	—
Balance, end of year	<u>1</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
<b>Warrants</b>						
Balance, beginning of year	1,714,987	1,819	1,662,450	1,746	1,662,500	1,747
Issued during year for cash (net of issue costs)	180,000	—	100,000	131	—	—
Exercised during year	(1,614,861)	(1,818)	(47,463)	(58)	(50)	(1)
Expired during year	(126)	(1)	—	—	—	—
Balance, end of year	<u>280,000</u>	<u>—</u>	<u>1,714,987</u>	<u>1,819</u>	<u>1,662,450</u>	<u>1,746</u>
Total shares and warrants, end of year	<u>23,532,954</u>	<u>\$ 337,851</u>	<u>17,068,559</u>	<u>\$ 119,631</u>	<u>13,952,151</u>	<u>\$ 59,013</u>



**Share incentive plans**

In 1997, the Company adopted new share incentive plans replacing the 1995 plans. The following is a description of the material provisions of the 1997 plans.

**Share option plan**

All directors, officers, employees, and consultants of the Company and its subsidiaries are eligible to participate in the share option plan. The number of common shares which may be made subject to option under the share option plan is limited to 1,350,000. As at December 31, 1997, no options have been issued under this plan.

All options will be for a term of 10 years from the date of grant unless otherwise determined by the board of directors. One third of the options vest and may be exercised in each of the 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> years after granting.

	Common shares	Price
<b>Share options</b>		
Balance, December 31, 1995	1,205,398	\$ 7.09 to \$ 13.75
Options granted	599,670	\$ 22.25
Options exercised	(233,488)	\$ 7.09 to \$ 22.25
Options cancelled	(26,669)	\$ 7.20 to \$ 22.25
Balance, December 31, 1996	1,544,911	\$ 7.09 to \$ 22.25
Options granted	328,600	\$ 35.45 to \$ 74.25
Options exercised	(439,754)	\$ 7.09 to \$ 35.45
Options cancelled	(50,960)	\$ 7.20 to \$ 35.45
Balance, December 31, 1997	1,382,797	\$ 7.09 to \$ 74.25

**Share distribution plan**

The share distribution plan permits up to 150,000 Common shares to be issued without cash consideration, to employees of the Company to recognize their past contributions and to encourage future contributions to the Company. There are 148,405 shares remaining for distribution at December 31, 1997. During 1997, 66,700 shares were issued under the previous share distribution plan.

**Series 1 preferred shares**

In 1997, as part of the Daimler-Benz/Ballard Power Systems alliance agreement, the Company issued one Series 1 preferred share. This share is convertible, redeemable and non-voting except for the right to elect a number of directors based on the Common shareholdings of the Company by Daimler-Benz AG.

**Warrants**

The Company issued 1,662,500 Warrants as part of its public offerings in 1993 and 1994. Each Warrant entitled the holder to purchase one Common share of the Company upon payment of the exercise price of \$10 on or before June 16, 1997. By June 16, 1997, 1,662,374 Warrants were exercised with the balance of 126 Warrants cancelled on expiry.

The Company issued 280,000 Warrants to joint development partners in 1996 and 1997. Each Warrant entitles the holder to purchase one Common share of the Company upon completion of certain purchase commitments from the Company and upon payment of exercise prices of \$25.63 to \$27.45 on or before December 24, 2001.

There are commitments to issue 350,000 additional Warrants to joint development partners as per the terms of their respective contracts.

## 8 Disposition of subsidiary

Effective April 28, 1995, the Company sold its entire interest in Ballard Battery Systems Corporation to Bashaw Holdings Ltd. which was subsequently renamed BlueStar Battery Systems International Corp. ("BlueStar International"). For its interest in Ballard Battery Systems Corporation, the Company received a convertible debenture of BlueStar International of a principal amount of approximately \$1,500. The debenture matured September 30, 1997 and bore interest at the rate of 6% per annum payable in cash or in shares at the option of BlueStar International, subject to regulatory approval. The debentures were convertible into common shares of BlueStar International at the rate of one common share per dollar of principal.

During 1997, the Company converted the remaining \$720 (1996 - \$846) of principal into common shares which it subsequently sold, resulting in a gain of \$1,440 (1996 - \$4,015).

## 9 Gain on issuance of shares by subsidiary

During the year, a subsidiary of the Company, Ballard Generation Systems Inc., issued shares to a third party. As a result, the Company's interest in the subsidiary was reduced from 94.3% to 89.9%. This change in the interest in the subsidiary is accounted for as an effective disposition of shares and results in a gain for accounting purposes.

## 10 Commitments and contingencies

At December 31, 1997, the Company is committed to payments under operating leases for premises as follows:

1998	\$ 1,335
1999	1,415
2000	1,329
2001	1,329
2002	1,567
Thereafter	27,038
Total minimum lease payments	\$ 34,013

The Company has agreed to pay royalties in respect of sales of stationary power plants under two development programs with government agencies. The total combined royalty is limited in any year to 4% of revenue from stationary power plant sales. Under the Utilities Development Program (Phase I) with the Governments of Canada and British Columbia, the royalty is at a rate of 4% commencing in 1998 to the aggregate of the original amount of the government contribution. Under the terms of the Utilities Development program (Phase 2) with Technology Partnerships Canada entered into during 1997, the Company has agreed to pay a 4% royalty on future revenue from stationary power plants to a maximum of \$38,330 in exchange for a contribution of 32% of costs incurred in the development and demonstration of a 250 kW natural gas PEM stationary power plant up to a maximum contribution of \$29,360. The Technology Partnerships Canada royalty becomes payable at the later of January 1, 2001 and January 1 of the year the Company reports a net profit after tax on its audited financial statements. During 1997, the Company claimed \$7,826 of which \$6,718 has been credited against research and product development and \$1,108 has been credited against fixed assets.

At December 31, 1997, the Company was committed to expenditures in respect of long-term fuel cell related development contracts amounting to \$Nil (1996 - \$52; 1995 - \$516). These commitments were related to contracts with certain third parties under which the Company received \$Nil (1996 - \$1,072; 1995 - \$7,433).

Under the terms of the Company's agreement with Daimler-Benz (*Note 4*), it is committed to spend \$90,000 on the development of fuel cells and related manufacturing processes for bus, car, and truck applications.

The Company has issued a letter of credit in the amount of \$1,200 related to a lease agreement for premises.

## 11 Research and product development

The Company develops products and related technology using its own resources and through product development and demonstration contracts with strategic partners and various government agencies. The Company is entitled to use the products and technology developed under these contracts. The total expenditures related to this research and product development in the year are included in:

	1997	1996	1995
Research and product development, net of government contributions	\$ 18,126	\$ 15,445	\$ 12,846
Government contributions	6,718	178	88
Cost of revenues	20,278	19,878	12,414
	<u>\$ 45,122</u>	<u>\$ 35,501</u>	<u>\$ 25,348</u>

## 12 Patents and intellectual property

The Company obtains protection of the intellectual property which it develops by appropriate filing for patents in Canada, the United States and other countries. Legal expenditures related to such filings in the year are included in:

	1997	1996	1995
Research and product development	\$ 594	\$ 748	\$ 802
Cost of revenues	—	—	232
	<u>\$ 594</u>	<u>\$ 748</u>	<u>\$ 834</u>

## 13 Income taxes

The Company's computation of income tax expense is as follows:

	1997	1996	1995
Earnings (loss) before income taxes	\$ 2,048	\$ (6,142)	\$ (7,381)
Add (deduct)			
Taxable gain on sale of technology not recognized for accounting purposes	9,715	—	—
Gain on issuance or disposition of subsidiary shares not subject to tax	(6,536)	(7,287)	(4,350)
Net tax losses not recognized	10,375	14,635	12,098
Utilization of prior years' losses not previously recognized	(15,151)	—	—
Other items	(451)	(1,206)	(367)
Accounting income for tax purposes	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>

The Company has available for carryforward scientific research expenditures, Canadian and German non-capital losses, U.S. net operating losses, and investment tax credits of \$32,832, \$1,756, \$1,726, \$1,978 and \$20,686 (1996 - \$33,914, \$Nil, \$Nil, \$1,052, and \$14,523) respectively at December 31, 1997. The scientific research expenditures may be carried forward indefinitely. The Canadian non-capital losses of \$1,756 can be used to offset future Canadian taxable income and expire over the period from 2003 to 2004. The German non-capital losses of \$1,726 can be used to offset future taxable income in Germany and may be carried forward indefinitely. The U.S. net operating losses of \$1,978 can be used to offset future U.S. taxable income and expire over the period from 2007 to 2012. Investment tax credits can be used to offset future taxes otherwise payable and expire as follows:



Year of expiry	Investment tax credits
1998	\$ 76
1999	319
2000	352
2001	244
2002	99
2003	1,460
2004	1,542
2005	4,260
2006	6,441
2007	5,893
	<u>\$ 20,686</u>

#### 14 Related party transactions

The Company provides administrative and other services to related companies. The Company also subcontracts certain engineering services to these related companies. Revenues include sales of fuel cells and related equipment of \$1,177 (1996 - \$Nil) to these related companies. Cost of revenues and expenses include purchases of \$2,060 from these companies offset by administrative services billed to these related companies of \$619 (1996 - \$Nil). The Company was billed by an entity with an ownership interest in the Company for contract research and product development costs totalling \$502 (1996 - \$Nil). At December 31, 1997, the Company has an accounts receivable balance of \$2,975 (1996 - \$Nil) due from these companies and has an accounts payable balance of \$2,100 (1996 - \$Nil) due to these companies.

#### 15 Segmented financial information

During 1997, the Company operated in two industry segments, fuel cells and fuel cell systems. Until April 28, 1995, the date of disposal of the Company's battery subsidiary, the Company operated in three industry segments, fuel cells, fuel cell systems, and batteries. Fuel cell operations comprise the development, manufacture and marketing of proton exchange membrane fuel cells. Fuel cell systems comprise the development, manufacture, and marketing of fuel cell systems that incorporate a fuel cell to provide power for applications such as transportation engines, stationary power plants, marine power systems, and portable power systems. Battery operations comprised the development, manufacture, and sale of advanced batteries.

Substantially all the Company's operations are located in Canada. Canadian operations include export revenues of \$17,740 (1996 - \$20,206; 1995 - \$17,966) of which \$13,029 (1996 - \$8,089; 1995 - \$5,772) went to the United States and \$2,269 (1996 - \$10,040; 1995 - \$11,290) went to Europe.

	Industry Segments			
	Fuel Cells	Fuel Cell Systems	Other	Total
December 31, 1997				
Revenues	\$ 13,041	\$ 11,151	\$ —	\$ 24,192
Other	—	25,967	5,504	31,471
Total	<u>\$ 13,041</u>	<u>\$ 37,118</u>	<u>\$ 5,504</u>	<u>\$ 55,663</u>
Net earnings (loss) for year	\$ (13,916)	\$ 11,248	\$ 4,716	\$ 2,048
Identifiable assets	\$ 75,107	\$ 95,800	\$ 169,819	\$ 340,726
Capital expenditures	\$ 6,743	\$ 4,034	\$ —	\$ 10,777
Depreciation and amortization	\$ 3,606	\$ 814	\$ —	\$ 4,420
Equity in loss of investees	\$ —	\$ 2,907	\$ —	\$ 2,907
Investments in associated companies	\$ —	\$ 70,762	\$ —	\$ 70,762

Revenues from two transit authorities (28%), a government agency (21%) and one commercial customer (13%) of the Company's fuel cells and fuel cell systems segments represent more than 10% of total revenue in 1997.

December 31, 1996	Industry Segments			
	Fuel Cells	Fuel Cell Systems	Other	Total
Revenues	\$ 15,137	\$ 10,647	\$ —	\$ 25,784
Other	—	5,881	6,705	12,586
Total	\$ 15,137	\$ 16,528	\$ 6,705	\$ 38,370
Net earnings (loss) for year	\$ (7,893)	\$ (4,690)	\$ 6,441	\$ (6,142)
Identifiable assets	\$ 18,345	\$ 12,272	\$ 76,513	\$ 107,130
Capital expenditures	\$ 5,954	\$ 4,107	\$ —	\$ 10,061
Depreciation and amortization	\$ 1,270	\$ 793	\$ —	\$ 2,063

Revenues from two transit authorities (31%) and one commercial customer (29%) of the Company's fuel cells and fuel cell systems segments represent more than 10% of total revenue in 1996.

December 31, 1995	Industry Segments			
	Fuel Cells	Fuel Cell Systems	Other	Total
Revenues	\$ 11,753	\$ 8,540	\$ 724	\$ 21,017
Other	—	—	3,497	3,497
Total	\$ 11,753	\$ 8,540	\$ 4,221	\$ 24,514
Net earnings (loss) for year	\$ (1,562)	\$ (8,064)	\$ 2,245	\$ (7,381)
Identifiable assets	\$ 15,114	\$ 3,968	\$ 29,218	\$ 48,300
Capital expenditures	\$ 5,897	\$ 1,285	\$ —	\$ 7,182
Depreciation and amortization	\$ 1,081	\$ 173	\$ 101	\$ 1,355

Revenues from three commercial customers (68%) of the Company's fuel cells and fuel cell systems segments represent more than 10% of total revenue in 1995.

## 16 Net earnings (loss) per share

Net earnings (loss) per share is calculated using the weighted average number of Common shares outstanding for the year which amounted to 18,501,774 (1996 - 14,302,111; 1995 - 10,436,072). Fully diluted earnings per share, which has been calculated on the basis that all share options and warrants were exercised at the beginning of the year, is not dilutive.

## 17 Differences between Canadian and United States accounting principles and practices

The consolidated financial statements have been prepared in accordance with accounting principles and practices generally accepted in Canada (Canadian basis) which differ in certain respects from those principles and practices that the Company would have followed had its consolidated financial statements been prepared in accordance with accounting principles and practices generally accepted in the United States (U.S. basis).

- On a Canadian basis, the Company is required to recognize the gain on sale of fixed assets and intellectual property in exchange for an equity interest in DBB Fuel Cell Engines GmbH. However, on a U.S. basis, the Company is required to not recognize any gains resulting from this transaction.
- On a Canadian basis, the Company has accounted for funding received under the Technology Partnerships Canada (TPC) agreement in accordance with specific pronouncements on accounting for government assistance by reducing research and product development expenses and fixed assets by the amount of the funding received. On a U.S. basis, there are no authoritative accounting standards addressing the various types of government assistance programs. Since the TPC funding combines the characteristics of a grant with some characteristics of a debt instrument, the Company has adopted a conservative approach which is to record the TPC funding as long-term debt.
- On a U.S. basis, shares issued under the Company's share distribution plan are deemed to be compensatory.

L.T.  
Debit diff

These would have been reported in the consolidated balance sheets, consolidated statements of operations and accumulated deficit and consolidated statements of changes in financial position as follows:

Consolidated balance sheets

	1997		1996		1995	
	Canadian basis	U.S. basis	Canadian basis	U.S. basis	Canadian basis	U.S. basis
Fixed assets	\$ 23,127	\$ 24,235	\$ —	\$ —	\$ —	\$ —
Investments	\$ 70,762	\$ 51,331	\$ —	\$ —	\$ —	\$ —
Long-term debt	\$ 542	\$ 8,368	\$ —	\$ —	\$ —	\$ —
Other assets	\$ 337,851	\$ 344,572	\$ 310,421	\$ 310,421	\$ 288,812	\$ 288,812
Accumulated deficit, end of year	\$ (29,100)	\$ (61,970)	\$ (10,144)	\$ (10,144)	\$ (10,144)	\$ (10,144)

Consolidated statements of operations and accumulated deficit

Under U.S. generally accepted accounting principles and SEC rules, revenues and their associated costs would be segregated as shown below:

	1997	1996	1995
<b>Revenues</b>			
Sales of goods	\$ 3,857	\$ 2,990	\$ 1,790
Long-term development contracts	20,335	22,794	19,227
	<u>\$ 24,192</u>	<u>\$ 25,784</u>	<u>\$ 21,017</u>
<b>Cost of revenues</b>			
Sales of goods	\$ 2,508	\$ 3,325	\$ 676
Long-term development contracts	20,278	19,877	12,414
	<u>\$ 22,786</u>	<u>\$ 23,202</u>	<u>\$ 13,090</u>
<b>Net earnings (loss) under Canadian GAAP</b>	\$ 2,048	\$ (6,142)	\$ (7,381)
Gain on sale of fixed assets and intellectual property	1197 (19,431)	—	—
Research and product development	1197 (6,718)	—	—
Compensatory shares and options issued	65 (3,527)	(692)	(442)
<b>Net loss under U.S. GAAP</b>	<u>(27,628)</u>	<u>(6,834)</u>	<u>(7,823)</u>
<b>Accumulated deficit, beginning of year</b>	<u>(34,342)</u>	<u>(27,508)</u>	<u>(19,685)</u>
<b>Accumulated deficit, end of year</b>	<u>\$ (61,970)</u>	<u>\$ (34,342)</u>	<u>\$ (27,508)</u>
<b>Basic/diluted loss per share, U.S. GAAP</b>	<u>\$ (1.49)</u>	<u>\$ (0.48)</u>	<u>\$ (0.75)</u>

96 intro equity (3,194) ←  
97 O/S def. (112) 112  
112 112



**Consolidated statements of changes in financial position**

On a U.S. basis, non-cash transactions would be excluded from the statements of changes in financial position.

	1997	1996	1995
Cash provided by (used in) operating activities under Canadian GAAP	\$ (13,945)	\$ (13,837)	\$ (12,005)
Research and product development	(6,718)	—	—
Cash provided by (used in) operating activities under U.S. GAAP	<u>\$ (20,663)</u>	<u>\$ (13,837)</u>	<u>\$ (12,005)</u>
Cash provided by financing activities under Canadian GAAP	\$ 246,682	\$ 71,193	\$ 21,586
Issuance of long-term debt	7,826	—	—
Common shares issued for intellectual property and fixed assets	(55,972)	—	—
Proceeds on sale of intellectual property and fixed assets	(21,238)	—	—
Cash provided by financing activities under U.S. GAAP	<u>\$ 177,298</u>	<u>\$ 71,193</u>	<u>\$ 21,586</u>
Cash provided by (used in) investing activities under Canadian GAAP	\$ (155,848)	\$ (10,602)	\$ 652
Additions to fixed assets	699	—	—
Investment in fuel cell technology	55,972	—	—
Investments in associated companies	19,431	—	—
Cash provided by (used in) investing activities under U.S. GAAP	<u>\$ (79,746)</u>	<u>\$ (10,602)</u>	<u>\$ 652</u>

**18 Fair value of financial instruments**

At December 31, 1997 and 1996, the fair value of cash and cash equivalents, short-term investments, accounts receivable, accounts payable, and accrued liabilities approximates carrying values because of the short-term nature of these instruments. The fair value and carrying amounts of other financial instruments are as follows:

	1997		1996	
	Carrying amount	Fair value	Carrying amount	Fair value
Debenture in former subsidiary	\$ —	\$ —	\$ —	\$ 1,440
Long-term debt	\$ 542	\$ 542	\$ 1,101	\$ 1,101

**19 Comparative amounts**

Certain prior year amounts have been reclassified to conform with the presentation adopted in the current year.

**If you wish to be on Ballard's Supplemental Mailing List please complete  
and return this card by mail or by facsimile to 604.412.4700.**

*Important: If this card is not returned we will assume that you wish to be removed  
from Ballard's Supplemental Mailing List.*

Please put / retain my name on Ballard's mailing list for Annual and Quarterly Reports

Name		Shareholder <input type="checkbox"/> Yes <input type="checkbox"/> No
Company	Title	
Address		
City	Province / State	Postal Code / Zip Code
Country	Tel	Fax
Description:		
<input type="checkbox"/> Analyst	<input type="checkbox"/> Individual Investor	Media <input type="checkbox"/> Business
<input type="checkbox"/> Corporate Finance	<input type="checkbox"/> Library	<input type="checkbox"/> General
<input type="checkbox"/> Financial Advisor	<input type="checkbox"/> Other (Please Specify)	<input type="checkbox"/> International
<input type="checkbox"/> Portfolio Manager		<input type="checkbox"/> Trade

Retired Chairman and  
Chief Executive Officer  
GPU, Inc.  
Parsippany NJ USA

**Dr. Ferdinand Panik** <sup>2,3</sup>

Senior Vice President – Fuel Cells  
Daimler-Benz AG  
Stuttgart Germany  
President and Chief Executive Officer  
DBB Fuel Cell Engines

**Firoz A. Rasul**

President and Chief Executive Officer  
Ballard Power Systems  
Vancouver BC Canada

<sup>1</sup> Member of the Audit Committee  
Chairman – Michael J. Brown

<sup>2</sup> Member of the Compensation Committee  
Chairman – Dr. J. Fraser Mustard

<sup>3</sup> Member of the Committee on Directors  
Chairman – Dr. J. Fraser Mustard

604.412.4700 Facsimile

Neue Strasse 95  
73230 Kirchheim – Nabern  
Germany

12190 Tech Center Drive  
Poway CA USA 92064

Unit C, 4242 Phillips Avenue  
Burnaby BC Canada V5A 2X2

116 Village Boulevard, Suite 200  
Princeton NJ USA 08540-5799

*Transfer Agent and Registrar*

Montreal Trust Company  
Stock and Bond Transfer Department  
510 Burrard Street  
Vancouver, BC Canada V6C 3B9  
604.661.0222 Telephone  
604.661.9480 Facsimile

*Bankers*

Royal Bank of Canada  
Vancouver BC Canada

about the Company or to be placed  
on the Company's supplemental list  
for quarterly reports please contact:

**Ballard Power Systems Inc.**

*Investor Relations*  
9000 Glenlyon Parkway  
Burnaby BC Canada V5J 5J9

604.412.3195 Telephone  
604.412.4700 Facsimile

investors@ballard.com  
http://www.ballard.com

*Annual Meeting*

The Annual Meeting of Shareholders  
of Ballard Power Systems Inc.  
will be held at the Robson Square  
Conference Centre, at 800 Robson  
Street, Vancouver BC on May 21  
1998, at 2:00 p.m.

**Ballard Power Systems Inc.**  
**9000 Glenlyon Parkway**  
**Burnaby BC**  
**Canada V5J 5J9**

## 18 Fair value of financial instruments

At December 31, 1997 and 1996, the fair value of cash and cash equivalents, short-term investments, accounts receivable, accounts payable, and accrued liabilities approximates carrying values because of the short-term nature of these instruments. The fair value and carrying amounts of other financial instruments are as follows:

	1997		1996	
	Carrying amount	Fair value	Carrying amount	Fair value
Debenture in former subsidiary	\$ —	\$ —	\$ —	\$ 1,440
Long-term debt	\$ 542	\$ 542	\$ 1,101	\$ 1,101

## 19 Comparative amounts

Certain prior year amounts have been reclassified to conform with the presentation adopted in the current year.



# Corporate Information

## Directors

### **Dr. J. Fraser Mustard** <sup>2,3</sup>

*Chairman of the Board*  
Founding President  
Canadian Institute of Advanced Research  
Founder's Network  
Toronto ON Canada

### **Stephen T. Bellringer** <sup>3</sup>

President and CEO  
Orca Bay Sports & Entertainment  
Former President & CEO  
BC Gas Inc.  
Vancouver BC Canada

### **Michael J. Brown** <sup>1,3</sup>

President  
Ventures West Management Inc.  
Vancouver BC Canada

### **Anthony Charnish** <sup>1</sup>

Retired Investment Manager  
Business Development Bank of Canada  
Vancouver BC Canada

### **Dr. Edgar Krökel** <sup>1</sup>

Senior Vice President –  
Mergers & Acquisitions  
Daimler-Benz AG  
Stuttgart Germany

### **James R. Leva** <sup>2</sup>

Retired Chairman and  
Chief Executive Officer  
GPU, Inc.  
Parsippany NJ USA

### **Dr. Ferdinand Panik** <sup>2,3</sup>

Senior Vice President – Fuel Cells  
Daimler-Benz AG  
Stuttgart Germany  
President and Chief Executive Officer  
DBB Fuel Cell Engines

### **Firoz A. Rasul**

*President and Chief Executive Officer*  
Ballard Power Systems  
Vancouver BC Canada

## Officers of the Company

### **Firoz A. Rasul**

*President and Chief Executive Officer*  
Ballard Power Systems

### **Neil C. Otto**

*Vice President*  
Ballard Power Systems  
*President, Ballard Automotive*

### **Dr. Alfred E. Steck**

*Vice President, Research and Development*  
Ballard Power Systems  
*President, Ballard Advanced Materials*

### **Mossadiq S. Umedaly**

*Vice President and Chief Financial Officer*  
Ballard Power Systems

### **Scott A. Weiner**

*Vice President*  
Ballard Power Systems  
*President, Ballard Generation Systems*

## Corporate Offices

### Corporate Headquarters

9000 Glenlyon Parkway  
Burnaby BC Canada V5J 5J9  
604.454.0900 Telephone  
604.412.4700 Facsimile

Neue Strasse 95  
73230 Kirchheim – Nabern  
Germany

12190 Tech Center Drive  
Poway CA USA 92064

Unit C, 4242 Phillips Avenue  
Burnaby BC Canada V5A 2X2

116 Village Boulevard, Suite 200  
Princeton NJ USA 08540-5799

## Transfer Agent and Registrar

Montreal Trust Company  
Stock and Bond Transfer Department  
510 Burrard Street  
Vancouver, BC Canada V6C 3B9  
604.661.0222 Telephone  
604.661.9480 Facsimile

## Bankers

Royal Bank of Canada  
Vancouver BC Canada

## Independent Auditors

Price Waterhouse  
Vancouver BC Canada

## Legal Counsel

Corporate & Securities  
Lang Michener Lawrence & Shaw  
Vancouver BC Canada

## Securities

Shearman & Sterling  
New York NY USA

## Intellectual Property

McAndrews, Held & Malloy, Ltd.  
Chicago IL USA

## Stock Listing

The Company's Common shares are listed on The Toronto Stock Exchange under the trading symbol BLD and on the Nasdaq National Market System under the trading symbol BLDPF.

## Investor Relations

To obtain additional information about the Company or to be placed on the Company's supplemental list for quarterly reports please contact:

### **Ballard Power Systems Inc.**

*Investor Relations*  
9000 Glenlyon Parkway  
Burnaby BC Canada V5J 5J9

604.412.3195 Telephone  
604.412.4700 Facsimile

investors@ballard.com  
http://www.ballard.com

## Annual Meeting

The Annual Meeting of Shareholders of Ballard Power Systems Inc. will be held at the Robson Square Conference Centre, at 800 Robson Street, Vancouver BC on May 21 1998, at 2:00 p.m.

<sup>1</sup> Member of the Audit Committee  
Chairman – Michael J. Brown

<sup>2</sup> Member of the Compensation Committee  
Chairman – Dr. J. Fraser Mustard

<sup>3</sup> Member of the Committee on Directors  
Chairman – Dr. J. Fraser Mustard

---

**Ballard Power Systems Inc.**

9000 Glenlyon Parkway  
Burnaby, British Columbia  
Canada V5J 5J9

*Telephone*  
604 454 0900

*Facsimile*  
604 412 4700